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The National Institute of Health

A STUDY IN
PUBLIC ADMINISTRATION

BY
VICTOR H. KRAMER, A.B.

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This study was written as a thesis in partial fulfillment of the requirements for the A.B.
degree with distinction in Government from Harvard University.

"Then that can be the only true form of government in which the governors are really found to possess science, and not mere pretenders, whether they rule according to law or without law, over willing or unwilling subjects, and are rich or poor themselves—none of these things can with any propriety be included in the notion of the ruler . . . There can be no doubt that legislation is in a manner the business of a king, and yet the best thing of all is not that the law should rule, but that a man should rule, supposing him to have wisdom and royal power . . . Because the law does not perfectly comprehend what is noblest and most just for all and therefore cannot enforce what is best . . . The differences of men and actions, and the endless irregular movements of human things, do not admit of any universal and simple rule. And no art whatsoever can lay down a rule which will last for all time . . . As the pilot, by watching continually over the interests of the ship and crew—not by laying down rules, but making art his law—preserves the lives of his fellow-sailors, even so, and in the self-same way, may there not be a true form of polity created by those who are able to govern in a similar spirit, and who show a strength of art which is superior to the law . . . I must have recourse to my favourite images [of] . . . the noble pilot and the wise physician . . . [Suppose it be enacted] that if any one is detected enquiring into piloting and navigation, or into health and the true nature of medicine, or about the winds, or other conditions of the atmosphere, contrary to the written rules, and has any ingenious notions about such matters, he is not to be called a pilot or physician, but a cloudy prating sophist . . . If such were the mode of procedure, Socrates, about these sciences and [all the others] . . . the arts would utterly perish, and could never be recovered, because enquiry would be unlawful."

PLATO, STATESMAN (Jowett translation)

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TO

DR. GEORGE W. McCOY

*Director of the National Institute of Health
from November, 1915 to January, 1937*

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PREFACE

SINCE virtually nothing has been written concerning the administration of the National Institute of Health I have had to rely entirely upon primary sources. These fall into two well-defined classes: (1) documents, and (2) contacts over a period of a few years with certain of the research workers at the Institute.

The documentary evidence consists largely of the Annual Reports of the Surgeon General of the United States Public Health Service, the Regulations Governing the Public Health Service, certain Congressional Committee Reports, the Public Health Service Regulations for the Sale of Viruses, Serums, Toxins, and Analogous Products, and the Congressional Hearings on various bills pertaining to the Institute.

In regard to the second general source, it should be added that within the last few months I have spoken with the men at the Institute specifically about the administrative problems arising out of their work.

This opportunity was afforded me as a result of my father's position as volunteer worker at the laboratory since 1924. Only because of his frequent conversations with me of the work and the men at the Institute, have I been able to reach some understanding concerning the methods and ideals behind scientific research in general, and of the character of the Institute in particular.

I owe particularly to Dr. Charles Armstrong, Dr. R. E. Dyer, Dr. Edward Francis, Dr. Walter T. Harrison, Dr. Ralph D. Lillie, Dr. George W. McCoy, Dr. Joseph G. Pasternack, and Mr. Thomas F. Probey of the scientific personnel, immeasurable thanks for their patience in explaining their points of view on certain administrative problems at the Institute.

I am particularly indebted to Mr. E. K. Foltz, Executive Assistant at the Institute, who answered literally hundreds of questions dealing with the regulations and laws of the Service and the administration of the Institute.

Dr. E. Pendleton Herring, Instructor in Government at Harvard University, made many valuable suggestions for preparing the study, and suggested many improvements in the manuscript.

Finally, to my tutor, Dr. Max A. Shepard, I owe much for his constant interest in the thesis and his many suggestions for the improvement of the manuscript during its preparation.

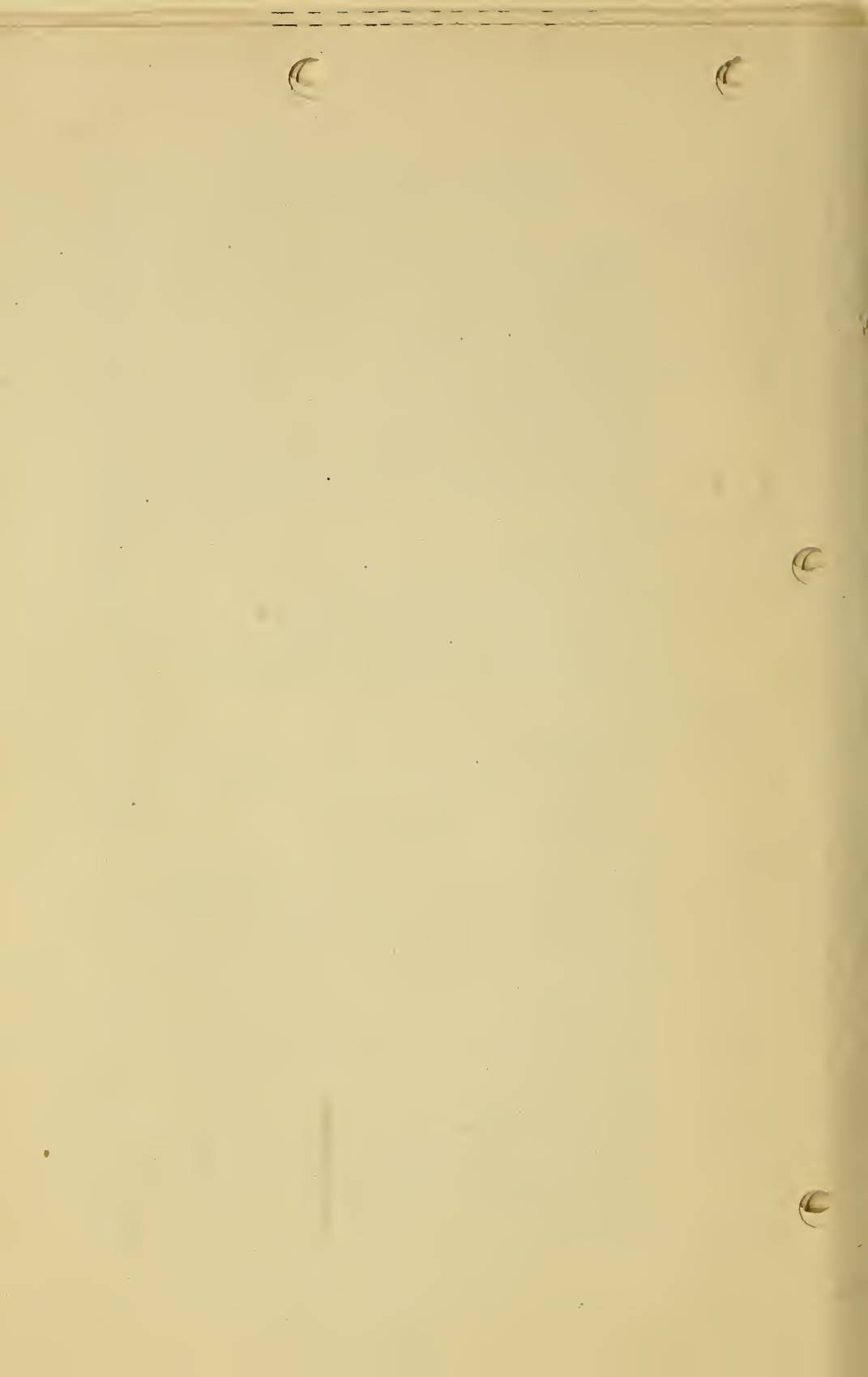
I cannot close without reiterating the great privilege afforded me of conversing with the men at the Institute. The observation of their devotion to an idea has, I hope, enriched the mind of the observer. Certainly, these associations are largely responsible for whatever truth there is contained in this thesis; it need hardly be added that I alone am responsible for whatever falsity it may contain.

VICTOR H. KRAMER

Eliot House
Cambridge, Mass.
March, 1935.

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INTRODUCTION

THIS is an inquiry into the administrative process in the National Institute of Health, a laboratory established in the United States Public Health Service for scientific research into the cause, prevention, and cure of diseases affecting human beings.

The author selected it for study, first, because its unique purpose in the government service marks it as worthy of special and detailed investigation; and, secondly, because of unusual circumstances, he was able to secure detailed information about the Institute not ordinarily available to the student of administration. These circumstances have been explained in the Preface to the thesis.

The first cause for study—the Institute's unique qualities—requires further elaboration. The laboratory is probably the only government bureau whose major function is research in scientific problems.¹ Thus our major problem is to discover the means employed to implement the scientific and technical work with administrative government, and the extent and reasons for the success of these means.

The first chapter discusses the history and organization of the Institute. Is there any particular characteristic about the organization of the Institute which accounts for its success? To what extent has the Director been subject to control by his superiors? To what degree is the Institute autonomous and what effect has this degree of autonomy had on the success of the Institute? Is the recent provision for the creation of fellowships in the Institute and for the acceptance of financial gifts for research a dangerous precedent? Or will it result in a beneficial enlargement of the work at the Institute?

In the second chapter the authority and jurisdiction of the laboratory is outlined and examined. The difficulties in the Institute's administration of a statute providing for the licensing of all vaccines, serums, toxins, and analagous products sold in interstate and foreign commerce are analyzed. To what can

1. The Bureau of Standards possibly is an exception to this generalization.

we attribute the difficulties in its administration? Is there a fundamental incompatibility between scientific research and such routine examination and inspection of manufacturing establishments as the law requires? Or can the difficulties be attributed to the personal prejudices and philosophy of the Director and his assistants? Or, in the last analysis, has the administration of this law been satisfactory? The remaining sections of this chapter discuss the cooperation of the Institute with state and local health agencies, with international public health organizations including that of the League of Nations, and with various private health associations and laboratories. Has this cooperation aided or hindered the research work at the laboratory? Has it been undertaken willingly or has it incurred bureaucratic opposition from the Institute? Has this cooperation been partly responsible for continued vitality and freshness of the work at the laboratory?

The important problem of personnel is treated in Chapter III. What lessons does the peculiar method of recruitment at the Institute have for other government services? Does the large field of selection account for the Institute's success in securing workers of ability and originality? Does the system of promotion in the Public Health Service fill the needs of the Institute? Is promotion important in securing results in research? To what extent, if any, do financial incentives improve the quality of the work? Is the compensation, although less than that paid by private institutions of a similar nature, sufficient because of the other advantages of working at the Institute? What are these advantages? And, in general, to what can we attribute the excellent esprit de corps at the Institute?

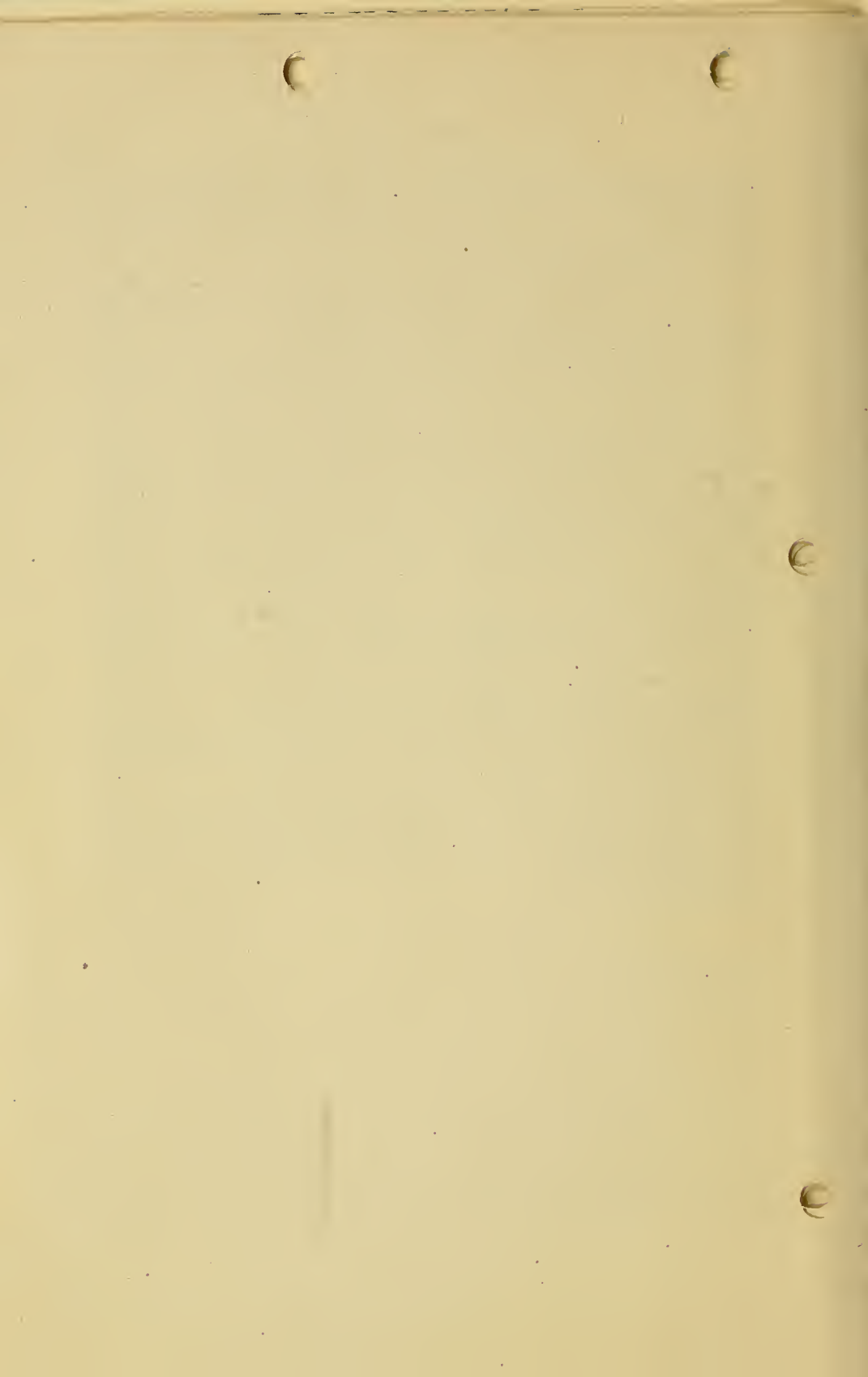
In the concluding chapter, the Institute is considered in its relation to the Public. The environmental influences affecting it are analyzed and evaluated. Is there any conflict between private and public research? Has the administration of the Virus law entailed any pressure upon the Institute from commercial groups? If not, why? Why has the Institute been successful in carrying out its purpose? How important a factor in its success has been the freedom from red tape and interference from higher authorities? Is its success due to its autonomy? Its able Director? Its excellent personnel? Its peculiar purpose? Is there a special quality about fundamental scientific research

which prevents us from drawing any general conclusions concerning government initiative in other fields? If this is not entirely true, how does the success of the Institute point the way to better state activity?

The author confesses to a deep-rooted objection to the methods of certain students of administration who fail to examine the character and personality of the administrators. Because "the ultimate possibilities of solving problems of government lie in the nature of the men . . . who compose the institution",² he has insisted on a careful examination of the prejudices, background, and philosophy of the men at the Institute, and particularly of the Director. The author is certain that government can never be anything else than government by men; that the appreciation of administrative problems can come only from a study of the administrators. This appreciation cannot be attained by a student who never leaves his desk in a university library. Although one or two general principles of administration may possibly be drawn from a study of the National Institute of Health, the study of government is not sufficiently exact or systematic to permit of any great number of generalizations. Therefore, we shall insist at every page upon examining the character of the administrators because "the differences of men and actions, and the endless movements of human beings, do not admit of any universal and simple rule."³

2. 2 FINER, *THEORY AND PRACTICE OF MODERN GOVERNMENT*, (1932) 1163.

3. PLATO, *STATESMAN* (Jowett translation). The entire passage is quoted on page 3.



CHAPTER I.

HISTORY AND ORGANIZATION

PART I: INTRODUCTORY

THERE are few more fascinating and instructive occupations than studying the history of institutions. And a study of the development of the National Institute of Health provides no exception to this rule. To watch its commencement as little more than a dream in the mind of a humble bacteriologist when bacteriology was little more than a scientific expression; to watch it struggle for formal recognition by its overlord, the Marine Hospital Service; to move with it into its own modest little building; to see this little building sprout an annex; to watch the institution in its attempts — attempts always fascinating, often successful — to unveil the shrouds of mystery covering the diseases of man; to travel behind as it slowly and painstakingly clears away the brush and briar of the forest of the unknown in its advancement into the field of the known; and, above all, to realize that this will go on beyond the lifetime of the traveler; such a journey cannot but thrill even the most humble student.

Of the many thoughts occurring to the student of such an institution, that which is most compelling is the realization that its history can be no more than the history of those men who contributed to its development. Viewed as a whole, the institution may appear quite independent of those who labored for it. But if its history be carefully dissected, the institution's development can only be made intelligible if described as a history of the men who built it.

But lest we anticipate our story, let us proceed to our examination of the history and organization of the National Institute of Health.

PART II: PERIOD FROM 1887-1930

It was at the close of a rather cool Saturday afternoon in August of 1887 that Past Assistant Surgeon J. J. Kinyoun of the

United States Marine Hospital Service¹ closed the door of his one-room laboratory in the hospital of the Service in New York City for the first time.² This day was the first in the history of the National Institute of Health.

In his annual report for 1886 the Supervising Surgeon General³ had urged that "a well-appointed laboratory, for the convenient manufacture of such preparations as are now made here (i.e. his own office) and a larger storeroom . . . would add greatly to the efficiency . . . of this office."⁴ And again in the following year he insisted that "to perform the service most efficiently, a building should be specially designed for the laboratory."⁵

Dr. Kinyoun and his assistants carried on experimental work in various medical problems in their room in the hospital until 1891 when the laboratory was removed to the upper story of the Butler Mansion in Washington. Here it was "proposed to carry on investigations into the causes of disease, to examine pathological specimens forwarded from the several hospitals, and to render such aid to State and local boards of health as may be requested in the interest of the public health."⁶ Although its functions have been tremendously enlarged since this statement was made, it can still be said that these constitute the chief purposes of the National Institute of Health today.

Finally, after a plea repeated in almost every annual report since the foundation of the laboratory, it was transferred to a separate building in Washington in 1904. For in 1901 Congress granted an appropriation of \$35,000 for a special laboratory building. Under the terms of the statute, the appropriation was to be used "for the erection of the necessary buildings and quarters for a laboratory for the investigation of infectious and contagious diseases, and matters pertaining to the public health, under the direction of the Supervising Surgeon General."⁷

1. Name changed to U. S. Public Health and Marine Hospital Service by Act of July 1, 1902, c. 1370, 32 STAT. 712; and changed again to U. S. Public Health Service by Act of Aug. 4, 1912, c. 288, 37 STAT. 309.

2. ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL, 1888, p. 11.

3. His title changed to Surgeon General by Act of July 1, 1902, c. 1370, 32 STAT. 712.

4. ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL, 1886, p. 11.

5. *Id.*, 1887, p. 10.

6. *Id.*, 1891, p. 18.

7. Sundry civil appropriation act, March 3, 1901, c. 853, 31 STAT. 1137.

In 1895, Dr. Kinyoun had urged the removal of the laboratory to a separate building so that it could become the nucleus for an institute, national in character, and developed on the same lines as those established by Germany, France, and England.⁸ Further reasons for its transfer to a separate building were urged in 1896. It was felt that "a laboratory of this character should not be placed in a building used for public offices. It is not only disagreeable to the other occupants, but in no little degree dangerous."⁹

Thus there may be noticed in the early years of the Hygienic Laboratory (its new name) a tendency toward independence from the rest of the Service; a tendency which becomes increasingly marked as the Laboratory develops. This may be attributed to a variety of causes. In the first place, the very nature of research into diseases affecting man is intensely individualistic. It is a commonplace that scientists are "cranks" and work most effectively when let alone. Secondly, their work is little understood, even by other members of the Service who are themselves not engaged in research. Thirdly, scientific investigation is not so closely bound up with the other work of the Service. It is probably less connected with it than any other of the functions of the Public Health Service. A final reason for the independence of the Laboratory — perhaps, most important of all — is to be attributed to the great success which it has enjoyed. We must be careful, however, not to confuse cause with effect; for it is by no means a small cause for the success of the laboratory that it has been allowed to pursue its own course by the rest of the Service, and by Congress.¹⁰

By the end of 1903 the new building for the Hygienic Laboratory was completed, and on March 16, 1904, thirteen men first walked in to the laboratory's new building on a knoll overlooking the Potomac River.¹¹ Under the directorship of Dr. Milton J. Rosenau¹² four divisions were established to deal with prob-

8. ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL, 1895, p. 343.

9. *Id.*, 1896, p. 1019.

10. This problem is discussed at greater length in the concluding chapter. For the present it must suffice to stress merely the administrative independence of the Hygienic Laboratory.

11. Conversation with Mr. Foltz. There were six commissioned officers, and seven non-commissioned members of the laboratory's staff at this time.

12. Dr. Kinyoun had resigned in 1898, and later became the director of the biological laboratories of the H. K. Mulford Company. *Id.*, 1906, p. 227.

lems of pathology and bacteriology, pharmacological problems, research in chemistry, and zoology.

It is well to point out here that, as the divisions have developed, there has not been the most cooperation possible between the Divisions of Chemistry and Pharmacology and the Division of Pathology and Bacteriology. Whether this has been due to the fact that the former divisions are housed in a separate building, to the different character of the work being performed, or to some other reason, it is impossible to say. It is quite probable that the Division of Pathology and Bacteriology is the most important of the four, and furthermore, its work has a more direct relation to the public health.

In addition, the course of training in research to officers of the Service which had been instituted by Passed Assistant Surgeon Kinyoun in 1894¹³ was enlarged. "The course . . . has developed into a complete course of instruction in the sanitary sciences."¹⁴ Eight student officers availed themselves of this instruction in 1904. This function has continued down to the present time, and is but one of the many functions of the Institute. The course has the advantage not only of training the officer in the sciences and laboratory technique, but also of exposing him to methods of research. It also enables the Director of the laboratory to select the exceptional student for further independent work.¹⁵

Early in the administration of Dr. Rosenau a Journal Club was formed "for the purpose of reviewing current public health literature and discussing work."¹⁶ The Club has continued to the present day and has the great value of keeping the staff "informed as to current research work and literature",¹⁷ as well as affording an opportunity for "the exchange of views among the research workers."¹⁸

The administration of the so-called Virus Law of 1902 was also commenced in this year (1903-4). The work is carried on under the Division of Pathology and Bacteriology. Eleven establishments in the United States and two abroad were inspected

13. *Id.*, 1894, p. 189.

14. *Id.*, 1904, p. 374.

15. This factor is dealt with in some detail in Chapter IV.

16. *Id.*, 1907, p. 45.

17. *Id.*, 1910, p. 49.

18. *Id.*, 1911, p. 78.

and licensed, and even by the next year a marked and gratifying improvement in the quality of the vaccine virus sold in open market was noticed by the Director in his report for that year.¹⁹

It is interesting to note that less than a year after the completion of the new building we find the Director making a plea for "increased facilities."²⁰

And largely to Dr. Rosenau must go the credit for having given the laboratory the essential organizational outline which it still possesses. He entered the Laboratory when the science of bacteriology was just emerging in this country, and it was through his vision that the laboratory was firmly established so early in its history.²¹

* * *

On May 21, 1906, the Advisory Board of the Hygienic Laboratory held its first meeting.²² This Board was established by an Act of Congress in 1902.²³ According to the terms of the statute, its function is to consult with the Surgeon General of the Public Health Service "relative to the investigations to be inaugurated, and the methods of conducting the same" in the Hygienic Laboratory. The Board is to consist of three competent experts, to be detailed from the Army, Navy, and the Bureau of Animal Industry, and these experts are to constitute, with the director of the laboratory, ex-officio members. Five other members of the board are to be appointed by the Surgeon General of the Public Health Service. The statute provides that these five "shall be skilled in laboratory work in its relation to the public health", and, further, that they shall not be in the regular employ of the government.

Contrary to what might be expected, although the Board has had the services of some of the most distinguished men in the profession in America,²⁴ its importance in the work of the Lab-

19. See his report published in the ANNUAL REPORT OF THE SURGEON GENERAL, 1905, p. 221, and in all succeeding years to date. Since the administration of this law involves many important problems of administration, it has been treated separately. (See Chapter II, Part I).

20. ANNUAL REPORT OF THE SURGEON GENERAL, 1904, p. 374.

21. Dr. McCoy, the present director, particularly emphasized this in a conversation with the author on January 27, 1935.

22. *Id.*, 1906, p. 231.

23. Act of July 1, 1902, c. 1370, 32 STAT. 712.

24. We need but cite such men as Dr. Percy M. Ashburn, Dr. Reid Hunt, Dr. Simon Flexner, Dr. Milton J. Rosenau, Dr. Victor C. Vaughan and Dr. William H. Welch.

* * *

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oratory has not been great. Its function has largely been that simply of considering research problems to be carried on at the Laboratory as submitted to it by the Director. Here again we note that quality of independence from any outside control which so characterizes the administrative position of the Institute. And at the risk of repetition, we observe once more that it is probably due to the intensely individualistic nature of scientific research. Even suggestions as to the type of problems to be attacked are rarely given for problems must of their very nature suggest themselves to the research worker himself as he progresses from one experiment to another. The solution of any one problem opens up a vast field of new projects. And how could any one have suggested to Faraday that he discover the law of induced currents? The important thing is to see that the services of the Faradays are, first, secured; and, second, that they are allowed to work unfettered and unhampered by "efficient" Directors or Surgeons General.²⁵

In his report for 1906, Director Rosenau makes this statement in connection with the Advisory Board:

"The inspiration derived both from the board collectively and its members individually has encouraged the laboratory corps, and it is felt that in the future the wisdom of this provision of the law of 1902 will become more and more manifest, bringing the national laboratory into scientific touch with most of the large private or corporate laboratories in the United States and permitting the coordination of scientific work and opportunity to avoid unnecessary duplication of scientific investigation."²⁶

These advantages, of course, are not to be underemphasized, but here again it can be said that "duplication" of fundamental scientific work is almost by its very nature impossible. We can conclude, then, that although the Advisory Board does not play a very large part in the determination of the choice of research problems in public health, it does afford an opportunity for men, most prominent in the profession, to visit the Laboratory, to make occasional suggestions; and, most important of all, it gives the research workers an opportunity to receive general advice from and compare notes with leaders in the profession in the outside world and in other government departments.²⁷

25. This problem is dealt with in Chapter IV.

26. ANNUAL REPORT OF THE SURGEON GENERAL, 1906, p. 232.

27. Section 13 of an Act of Congress of April 9, 1930, 46 STAT. 150, altered the scope and constitution of the Advisory Board by providing that

Before proceeding further with a consideration of the historical development of the Hygienic Laboratory, let us examine its place in the Public Health Service. We note here once more its independence from the rest of the Service; an independence which is to increase with the years, culminating in the Act of Congress establishing the National Institute of Health which we discuss below.

Although the Laboratory is placed under the Division of Scientific Research, one of the eight divisions of the Service, its Director reports directly to the Surgeon General,²⁸ rather than to the Assistant Surgeon General in charge of the scientific research division. This is a typical example of that independence of control by superiors which the Director enjoys. It is difficult to measure the extent of the control which the Surgeon General exercises over the Laboratory. He is usually chosen for his executive ability and for his tact in dealing with higher government officials and with Congressmen. For this reason "there is no well-established tendency to pick out the most conspicuous or most distinguished officer for the post of Surgeon General."²⁹ Consequently, because he is not skilled or practiced in research he does not exercise a great measure of control over the research carried on in the Laboratory. True, on special occasions, such as the Jamaica Ginger Paralysis epidemic, he instructs the Director to investigate the problem.³⁰ We conclude, then, that the lines the scientific investigation is to follow are largely drawn by the Director and his assistants. The present director, Dr.

it "Shall be known as the National Advisory Health Council, and the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, is authorized to appoint, from representatives of the public-health profession, five additional members of such council . . . Such council, in addition to its other function, shall advise the Surgeon General of the Public Health Service in respect to public-health activities."

28. See REGULATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE, 1931, p. 161. Article XXIII, which is concerned entirely with the laboratory, is given in full in Appendix B of this study. In actual practice, according to Mr. Foltz, Dr. McCoy administers through the office of Assistant Surgeon General in charge of the Division of Scientific Research, but he is not required by the service regulations to do so.

29. LEIGH, FEDERAL HEALTH ADMINISTRATION IN THE UNITED STATES, (1927) 559-560.

30. Other examples are those of psittacosis epidemic in 1930 and the so-called St. Louis sleeping sickness in 1933. Of course, all requests from states and cities for aid on major epidemics come through the office of the Surgeon General, but he almost invariably accepts the advice of the Director of the Laboratory.

George W. McCoy, firmly holds that competent investigators should be allowed to pursue their own ideas unfettered by exterior control. If a man's past record and the general impression he makes are favorable, Dr. McCoy allows him a free hand in the pursuit of his ideas. The Laboratory is thus allowed to conduct its work of scientific investigation free of interference.

This, obviously, is as it should be, for "the methods and objects of scientific investigation are such as to unfit an administrative official for exercising a type of control which is proper in other cases." Adequate safeguards are provided because the Institute "is guided by certain professional standards which may properly be relied upon to replace in part the administrative supervision which seems necessary to prevent waste and extravagance" in other bureaus.³¹

* * *

Turning to the further history of the Laboratory, we find a steady increase in its equipment and functions. In 1908 an addition was added to the original building at a cost of \$75,000. A steadily increasing number of vaccines, serums, toxins, etc., came to be licensed by the Laboratory. (A tabulation of this increase by years will be found in Appendix F.) At present 147 different preparations are licensed as well as 48 manufacturers.³² The appropriations for maintenance of the Laboratory also steadily increased. (This increase is shown in Appendix E.) In 1917 Congress commenced the practice of granting separate appropriations for the control of the biologic products. And it is interesting to note that in 1934 the appropriations have increased by almost ten times since 1907.³³ In addition the total number of employees at the Laboratory has rapidly grown, in 1904 there being thirteen and in 1934, 144.³⁴

In 1910 Dr. Rosenau resigned as Director to accept a professorship at Harvard Medical School, and he was succeeded by Dr. John S. Anderson, who resigned in 1915 to become Director of the Squibb & Company Research Laboratories. Dr. Reid Hunt,

31. WHITE, PUBLIC ADMINISTRATION (1926) 151-152.

32. ANNUAL REPORT OF THE SURGEON GENERAL, 1934, p. 38.

33. This includes both those for biologics and maintenance, but does not include those for salaries or for work in the field. The former two items will be found by years in Appendices D and E.

34. By the end of 1936, after this study was written, the number of personnel had increased to 177. The increase by years is shown in Appendix C.

head of the Division of Pharmacology had resigned in 1913 to accept a professorship at the Harvard Medical School.³⁵

On November 20, 1915, Dr. George W. McCoy became Director of the Hygienic Laboratory, which position he still occupies.³⁶ This can certainly be said to constitute a landmark in the history of the Laboratory. It is difficult not to eulogize him. He possesses all those rare qualities of tact, leadership, and directing genius which are so necessary for his position. Under him the Laboratory has enlarged its work until it now ranks among the five or six great institutions of medical research throughout the world. And it readily can be seen that, since the Laboratory is more or less free from outside control, the position of the Director is all-important. Indeed, no greater single bit of evidence could probably be found to support the generalization (page 15) that the history of an institution is the history of men, than that of this laboratory.

A large expansion of activity took place because of the War. The cost of maintenance doubled during this period, and the number of employees also increased substantially. In addition, there was constructed in 1919 a new building to house the Divisions of Zoology, Pharmacology, and Chemistry, at a cost of \$250,000.³⁷ Following the War, the size and activity of all divisions steadily increased, although at a somewhat slower rate.

One of the needs of the Laboratory, still not provided for in the Act creating the Institute, to which we are about to turn, is "a hospital attached to the Laboratory to which patients suffering from a particular disease which it is desired to study could be admitted, so that the cases could be studied throughout all the stages of the disease."³⁸ Even before 1911 (when this plea was made) requests for such facilities had been made repeatedly. And a good many of the officers at the Institute are still of opinion that a small hospital containing about 24 beds would be most helpful in the study of various diseases.

35. The problem of resignations, which is of much less importance today, is treated in Chapter IV.

36. On January 31, 1937, since the writing of this study, Dr. McCoy was relieved from duty as Director of the Institute, and assigned to make some special studies on leprosy.

37. See Act of Congress of October 30, 1918, c. 198, 40 STAT. 1018.

38. ANNUAL REPORT OF THE SURGEON GENERAL, 1911, p. 78.

PART III: PERIOD FROM 1930-1935

THE year 1930 saw the passage of an Act of Congress which contemplated a material change in the Hygienic Laboratory, and it is to this that we now turn. The Act³⁹ changes the name to "National Institute of Health", authorizes an appropriation of \$750,000 for the construction of additional buildings, creates a system of fellowships in the Institute, and authorizes "the Government to accept donations for use in ascertaining the cause, prevention and cure of disease affecting human beings."⁴⁰

Its author was Senator Ransdell, a man almost totally ignorant of scientific work and methods. The Act has been characterized by Senator Royal S. Copeland as Ransdell's gift to posterity. Despite all such characterizations, what the Act really does is, as Senator Sackett shrewdly pointed out, to "enlarge the scope of the work [of the laboratory] . . . and to provide you [*i. e.* the personnel of the Institute] with further facilities . . . so as to enable you to accept gifts and to provide legislatively for the employment of certain fellows that can be sent there,"⁴¹ rather than to create a new institution. The bill, therefore, can be said to give statutory recognition to a tendency which had been in progress since the founding of the laboratory; namely, the tendency to become increasingly independent of the rest of the Public Health Service; to increase the size of its buildings, and, to a lesser degree, the scope of its work. The fundamental purpose of the old Hygienic Laboratory, however, to "ascertain the cause, prevention, and cure of disease affecting human beings" remains the same.

The provisions of the Act itself are interesting. Section two provides for acceptance by the Secretary of the Treasury of gifts made unconditionally "for study, investigation, and research in the fundamental problems of the diseases of man, and matters pertaining thereto, and for the acquisition of grounds for the erection of equipment, and maintenance of buildings and premises". It provides further for the acceptance of conditional gifts if approved by the Surgeon General and the National Advisory Health Council. Finally, this section states that the

39. Act of May 25, 1930, 46 STAT. 379.

40. The Act is given in full along with all the other statutes or portions thereof, relevant to the laboratory since its foundation, in Appendix A.

41. *Hearings before the Subcommittee of the Committee on Commerce of the Senate*, contained in SEN. REP. No. 102, 71st Cong., 2d Sess. (1930).

"Surgeon General, with the approval of the Secretary of the Treasury, is authorized to establish and maintain fellowships in the National Institute of Health from funds designated for that purpose". Although Senator Ransdell thought that the work of the Institute through such provisions as these would grow "by leaps and bounds",⁴² this has not been the case. Because of the economic depression, or for other reasons, but one gift of substantial size has been made to the Institute.⁴³ This gift was that of the Chemical Foundation, which actively and openly supported the bill, in the sum of \$100,000 to establish a research fellowship in chemistry.⁴⁴

That, rather than creating a new institution, the real effect of the Act thus far has been to enlarge the work of the old Hygienic Laboratory and to give statutory recognition to practices which had been going on for years, can be seen from an examination of Section four. It provides that "the facilities of the institute shall from time to time be made available to bona fide health authorities of states, countries, or municipalities for purposes of instruction and investigation". This had been the practice of the old Laboratory for years past, as may be seen from the annual reports of the Surgeon General.⁴⁵

This does not mean, however, that we can dismiss the effects of the statute upon the future of the laboratory. Two new buildings were built for the Institute, and were occupied in August, 1934. The larger one is occupied by the Division of Pathology and Bacteriology, and the smaller building houses the offices of the Director and the Executive Assistant, and the library and periodical room.⁴⁶ Even at this early date (*circa* February 1, 1935), however, certain disadvantages in the new set-up can be observed. Whereas the former building was smaller and made

42. *Id.* at 12.

43. Numerous smaller donations have been made since the passage of the Act.

44. ANNUAL REPORT OF THE SURGEON GENERAL, 1932, p. 71-72. Dr. Clifford B. Purves was appointed to this position on September 1, 1931, and has since been engaged in enzyme research.

45. See Chapter III, Part VI.

46. The library which had approximately 150 bound volumes in 1904 and one clerk who, in addition to his regular duties, acted as Librarian (Mr. Foltz, now Executive Assistant) has steadily grown until at present (1935) it has 18,000 bound volumes and a staff of four persons. 347 periodicals are subscribed to annually. Under Section 59 of the copyright law of March 4, 1909, the library participates in the distribution of copyright deposits. (See ANNUAL REPORT OF THE SURGEON GENERAL, 1915, p. 83).

the research workers easily available to each other for informal conversation and mutual suggestions which play so large a part in research work, the new structure, because of its increase in size and number of floors makes more difficult this intimacy. The fact that the Director is in a different building is also not an altogether favorable arrangement.⁴⁷ On the other hand, the equipment in the new buildings is most modern and the finest made, and represents the very latest technical advances in scientific apparatus.⁴⁸

Nor can we view the provisions for acceptance of funds by the Surgeon General with complete favor. To be sure, adequate statutory safeguard is provided against funds donated conditionally, but nevertheless, this is to be considered as a dangerous precedent.⁴⁹ The history of scientific research contains many examples of the folly of conditional gifts.⁵⁰ In addition to the possibility that the money will be expended for futile and useless purposes, there is also the danger that alien interests will possibly secure an unwarranted influence in the administration of the Institute. Of course, this is a remote possibility, and

47. This is the author's opinion and is not shared by most of the staff.

48. The building formerly occupied by the Division of Pathology and Bacteriology is being renovated, and it will be used for research in problems of industrial hygiene. (It will not be a part of the National Institute of Health). In addition, at present, an animal farm is being constructed across the Potomac in Virginia.

49. Mr. Foltz has shown the author a copy of two unpublished agreements supplementing the Statute which must be signed by the donors of funds to the Institute. They supplement the provisions of section two of the Act of May 26, 1930, and provide additional safeguards against the possibilities of ultimate outside interference or futile expenditure, by providing in the case of conditional gifts "that if and when the purpose indicated above has been fulfilled, or when in the opinion of the majority of the members of the National Advisory Health Council further expenditures for such purpose would not be justified, the unexpended income from said gift, and/or the principal . . . thereof shall be expended by the Surgeon General, Public Health Service, with the approval of the Secretary of the Treasury . . . for research in the fundamental problems of the diseases of man and matters pertaining thereto . . ."

50. On this point it is well to consider this statement, made by Dr. Reid Hunt, President of the United States Pharmacopoeial Convention from 1920-1930, and printed in the ABSTRACT OF PROCEEDINGS (1931) at 36. He said: "It is not unusual in the United States for considerable sums of money to be made available for the discovery, for example, of a cure for cancer . . . etc. Such gifts come from the heart rather than from the head. . . . Ehrlich frequently warned, 'Never, never, accept money for one specific purpose.'" It must be added, however, that Dr. Hunt supported the Act creating the Institute at the hearings before the Senate subcommittee.

what affect section two of the Act will have on the work in the laboratory can only be speculative. Nevertheless, it may constitute an entering wedge, and for these reasons it is not viewed favorably by many of the older commissioned officers at the Institute.⁵¹

On the other hand, it must be said that the caliber of the work at the Institute has not declined, and it has continued to maintain its almost complete independence and peculiarly specialized position in the Public Health Service. This, as we have seen, has characterized almost its entire history.

51. Personal knowledge of the author. It is significant that Dr. McCoy, Director of the Institute, did not testify at all before the Senate subcommittee which held the hearings.

CHAPTER II.

AUTHORITY AND JURISDICTION

PART I: INTRODUCTORY

IN addition to the major authority conferred on the National Institute of Health to investigate the cause, prevention, and cure of infectious and contagious disease, and matters pertaining to the public health, the Institute exercises other authority conferred upon it either by statute directly or by statutes implemented with administrative orders. The duties arising from this exercise raise many important problems of administration. And it is to a consideration of this additional authority that we now turn.

PART II: ADMINISTRATION OF THE VIRUS LAW

By an Act of July 1, 1902, Congress vested in the Secretary of the Treasury authority to regulate under the provisions in the Act, the sale of virus, serums, toxins, and analogous products applicable to the prevention and cure of diseases of man¹ in the District of Columbia and in interstate traffic. Section one provides that none of these products are to be sold unless they have "been propagated and prepared at an establishment holding an unsuspended and unrevoked license, issued by the Secretary of the Treasury", and unless each package "is plainly marked with the proper name of the article contained therein, the name, address, and license number of the manufacturer, and the date beyond which the contents can not be expected beyond reasonable doubt to yield their specific results." Section two provides

1. An act designed to regulate the sale of this type of product in interstate commerce, etc., applicable to the prevention and cure of diseases of domestic animals was passed in 1913. (37 STAT. 832). Strangely enough, the provisions of this act are must stronger than those of the Act relating to vaccines, etc., for use in the treatment of human beings, since the preparation, sale, etc., of "worthless" products is clearly forbidden. (This Act is administered by the Bureau of Animal Industry). Dr. McCoy asserted that certain of the provisions of this Act were not enforceable, but this is questionable. See *Hearings before the House Subcommittee of the Committee on the District of Columbia, on H.R. 5845, H.R. 7366, and H. R. 8618, 68th Cong., 1st Sess. (1924)* 50-55.

"that no person shall falsely label or mark any package or container" of such products. Section three provides "that any officer, agent, or employee of the Treasury department duly detailed by the Secretary of the Treasury for that purpose", may inspect any establishment which manufactures viruses or analogous products for sale in the District of Columbia, or in interstate commerce. Section four provides that the Surgeons General of the Army, Navy, and Public Health Service shall constitute a board with authority, "subject to the approval of the Secretary of the Treasury", to promulgate regulations for the licensing of establishments engaged in the manufacture of such products when intended for sale in the District of Columbia or in interstate commerce. An additional section provides for the punishment of violators of this statute.

As early as 1894, Dr. Kinyoun, then director of the laboratory, had written from Germany while on an official visit that some sort of supervision over the manufacture of diphtheria antitoxin was desirable. He states in a letter² to the Supervising Surgeon General that Robert Koch, the discoverer of the antitoxin, "thought that there should be some Government supervision of the serum, so that the serum could always be relied upon",³ and Dr. Kinyoun, himself urged supervision for the products.⁴

The necessity of such regulation was admirably stated by Dr. George M. Kober, acting chairman of the Executive Committee of the Medical Society of the District of Columbia, in a communication to Mr. Babcock, a member of the House Committee on the District of Columbia, which rendered a report on the bill. Dr. Kober said:⁵

"Although the preventative and curative powers of viruses, serums, toxins, antitoxins, and analogous products, when properly prepared, has long since been established, certain unfortunate accidents which have resulted from their administration . . . have tended to discredit their use. It is of prime importance, therefore, that action be taken to preserve the confidence of the medical profession and of the community generally in them."

He added that all that was needed for their manufacture was "any kind of a stable, a little technical skill, and a fair amount

2. Dated, "Berlin, November 6, 1894", ANNUAL REPORT OF THE SUPERVISING SURGEON GENERAL, 1895, p. 320.

3. *Id.*, 1895, p. 326.

4. *Id.*, 1895, p. 95.

5. See H. R. REP. No. 2713, 57th Cong., 1st Sess. (1902).

of nerve." Thus the Act was designed to restore the confidence of the physicians in the value of viruses, etc., by insuring their purity and standard potency in the process of manufacturing them. It is worth observing now that nothing directly is mentioned in the hearings on the measure or in the act itself concerning the licensing of products of doubtful or no therapeutic value, unless contained in the section forbidding false labelling. This problem caused a great deal of trouble in the later administration of the Act.

* * *

The duty of administering this statute was placed in the Hygienic Laboratory, since it constituted the only agency in the Public Health Service (which is a Bureau in the Treasury Department) competent to carry out the provisions of the statute. And, although ultimate authority under the Act rests with the Secretary of the Treasury, in effect it rests with the Director of the Laboratory. His recommendations are invariably accepted by his superiors.⁶ And, as stated in the previous chapter, the administration continued quietly for many years. More and more products and establishments came to be licensed,⁷ and in their reports, the Directors noted a steady improvement in the quality of the products being manufactured.

On June 23, 1919⁸ the Solicitor of the Treasury ruled that the "Arsphenamines" should be included as an "analogous product" under the Act of 1902. This opinion is an interesting example of administrative law, and, although a more or less arbitrary ruling, no manufacturer has ever objected to it.⁹ The opinion quotes from a letter of June 9, 1919, from Dr. Rupert Blue, Surgeon General of the Service, sent to the Solicitor, and it is upon this that he based his decision. These quotations state that "unless properly supervised arsphenamine is likely to be highly toxic in ordinary doses, being capable of causing death either immediately or within a few days", and most important of all—"freedom from undue toxicity is found by testing biologically

6. Conversation with Dr. Harrison on December 24, 1934.

7. See Appendix F for table showing these increases by years.

8. From November 30, 1917, to this date, the Federal Trade Commission, acting under authority of the War Trade Board, had issued licenses to manufacture and sell the arsphenamines.

9. Conversation of the author with Mr. Thomas Probey who has charge of the licensing of this series of products. This paragraph is based largely on information which he very kindly supplied.

laboratory animals in a fashion that in case of viruses, serums, and toxins.”¹⁰ Viewed from the scientific, as distinct from the legal, standpoint, the ruling is undoubtedly wise, and has increased the safety and value of these products.

* * *

Late in 1923 a subcommittee of the House Committee on the District of Columbia was formed to consider proposed amendments to the so-called Virus Law of 1902. The history of this attempt at amendment throws light on the nature of the problems of regulation of viruses and analogous products. Dr. Paul DeKruif had written a series of articles for a Hearst Syndicate exposing the methods employed by certain manufacturers in selling these products, many of which were of no therapeutic value. Shortly after publication, the Sherman Laboratories, Inc., brought suit against Dr. DeKruif and Mr. Norman Hapgood, the editor of a Hearst magazine in which the articles appeared, and also against Mr. Hearst, himself, charging them with libel. Meanwhile—the facts here are very obscure—the accused had managed to have these amendments to the Virus Law proposed in order to expose certain manufacturers. It should be added that, although the amendments failed of adoption, the Sherman Laboratories, Inc., lost the suit against Dr. DeKruif and Messrs. Hapgood and Hearst.¹¹

Although the proposed amendments were altered many times during the hearings the underlying purpose of all of them was to give the Secretary of the Treasury or his subordinates power to refuse a license for a product on the ground that it was of no therapeutic value. One of the amendments provided that no license for a product should be granted unless “‘No United States standard of potency’ shall appear in plainly legible type upon the outside label or wrapper of each package, containing any product for which no official standard or test has been established” with certain exceptions.¹² Still another amendment provided that a license would not be issued for the preparation of any virus, etc., “if advertised so as to mislead or deceive the

10. See unpublished *Opinion of the Solicitor of the Treasury in re Arsphenamine in Relation to Act of July 1, 1902, Governing the Sale of Viruses, Serums, Toxins, and Analogous Products*.

11. This paragraph is based on a conversation of the author with Dr. Kramer, and on correspondence between Dr. Kramer and Dr. DeKruif.

12. See *Hearings*, cited, *supra* note 1, p. 28, at 55.

purchaser", or if the package in which it was sold "contains any statement . . . which is false or misleading in any particular." A much more sweeping amendment to section five of the Virus Law provided that "the Secretary of the Treasury be—authorized to decline to license any manufacturing establishment when in his judgment the public interests would be served by so declining the license." It was proposed, further, to authorize the Secretary of the Treasury to cancel any license for a product formerly licensed when the public interests would be served by such cancellation." For reasons which we do not need to examine here, all of these amendments failed of approval. Representatives of the manufacturers appeared with even more sweeping amendments, which were introduced with the obvious intent of killing the measure entirely.¹³

The most puzzling problem brought to light by these hearings is whether or not power was granted by the Act of 1902 to refuse a license to a manufacturer on the ground that the proposed product was of no therapeutic value. The following colloquy took place between Dr. S. P. Kramer, who was in favor of the proposed changes, and Dr. McCoy, Director of the Laboratory, during the hearings:¹⁴

Dr. K. "Doctor, you state that you thought influenza antitoxins were worthless. Did I understand you correctly?"

Dr. McC. "Well, I would go a little further and say I know they are worthless."

Dr. K. "Do you license them?"

Dr. McC. "We do."

Dr. K. "Have you any power at present to withhold that license?"

Dr. McC. "As I interpret the law, we would not."

Yet despite this denial of power to refuse a license on the ground that the product has no therapeutic value, we find this very significant statement in the annual report of Director McCoy for 1920, written almost four years earlier: "Since the policy has been adopted of recommending original licenses for biological products only when there is evidence of value . . .", etc.¹⁵ Most significant of all, in the "Regulations for the Sale of Viruses, Serums, Toxins, and Analogous Products in the District of

13. One in particular, was most effective in this regard, for it provided for government regulation of the entire patent medicine industry. Cf. *Id.*, at 131.

14. *Id.* at 53.

15. ANNUAL REPORT OF THE SURGEON GENERAL, 1920, p. 75.

Columbia and in Interstate Traffic", approved on March 13, 1934, and to supersede those issued August 1, 1923, we find this addition: "Licenses for new products shall not be granted without satisfactory evidence of therapeutic or prophylactic efficiency." And yet, on the other hand, we have Dr. McCoy's own statement that, even before these new regulations were issued, licenses have been refused when the staff of the Institute is convinced that the product has no therapeutic value. Perhaps the key to the problem might at first glance be thought to be found in Dr. McCoy's statement at the hearings that "it is the consensus of medical opinion"¹⁶ which supplies the basis upon which the Institute administers the law, and not "personal opinion". But that this is not the real basis becomes fully apparent when we consider the fact that there are over thousands of practicing physicians in the country and that it is impossible to judge what the "consensus" of opinion really is on a specific question. So that the personal views of the Director and his associates are bound to play a large part in determining which products shall be licensed.

The result of all this is that although (at least prior to 1934 when the new Regulations were issued) a government license implies only that the product is pure and (in determinable cases) has a certain standard of potency, the practitioner assumes in a great many instances that the product has therapeutic value. Dr. Kramer summed up the difficulties most pointedly when he said at the hearings:¹⁷

"These remedies come out with the imprimatur of the United States Government, United States license Number so-and-so; the doctors and the people of the United States believe in their government and when they see that label they assume—and I don't think rightfully, but they do—that the United States Government has passed on the remedy as a remedy".

It is for this reason, we suppose, that the Institute has finally become impatient with manufacturers who insist upon foisting on the public absolutely worthless remedies, and has added the provision cited above, stating that in the future only "new products" evidencing "therapeutic or prophylactic efficiency" will

16. See *Hearings*, cited, *supra* note 1, p. 28, at 55.

17. *Id.* at 76.

be licensed,¹⁸ although, as we have already seen, this was done to a certain extent prior to the adoption of this provision.

Of course, there is always the question as to whether or not this regulation is in accord with the Act of 1902, although the provision in section two concerning false labelling possibly provides the necessary statutory authority for the ruling. Yet if this be true one wonders why the amendments to the 1902 law were proposed, and further, why Dr. McCoy stated at that time that he did not have the authority to make just such a ruling.

With these facts before us, what can we conclude in regard to the administration of the Virus Law? To understand any problems of administration it is first necessary to know something of the background, personality, and philosophy of the administrator. Although statutes may describe the broad area within which the administration is to operate, within this sphere administrative government is of necessity government of men. And in this instance it is Dr. George W. McCoy who, in fact, although not in law, makes the final decision.¹⁹

We must, therefore, turn for a brief space to the personal biases of this man. Dr. McCoy, as is more or less characteristic of research workers, is intensely individualistic. He feels that it is not within his province to determine what remedies the general practitioner is to employ, despite the fact that he may be quite certain that those remedies are valueless. He agrees with Dr. Harrison's statement at the hearings that there are not any "preparations on the market at the present time that have not a certain proportion of the medical profession in favor of them".²⁰ There is always the very definite possibility, Dr. McCoy thinks, that he and his associates are incorrect in their conclusions; and he points out with no little degree of truth that advancements in the medical sciences have often been made by men who were considered almost insane by the profession at large. Indeed, many prominent investigators often disagree violently among themselves as to the therapeutic value of various

18. The author understands that this provision was aimed particularly at a few smaller, less ethical manufacturers who have attempted to secure licenses for patently worthless products.

19. The statute provides that the Secretary of the Treasury shall have the final power of decision, but in practice Dr. McCoy has the final word. See *supra*, p. . .

20. *Id.* at 147.

vaccines or antitoxins. For medicine is not yet the exact science that engineering, for example, has become. In short, Dr. McCoy regards the practice of medicine as intensely personal and does not think that it should be subject, in general, to alien control.²¹

Another factor determining Dr. McCoy's attitude toward the administration of the Virus Law is his love of harmony and peace. As will be demonstrated in the discussion of the personnel at the Institute, it is this love of harmony coupled with a dynamic personality that has made him so successful in building up an *esprit de corps* among the workers. For this reason, Dr. McCoy has been particularly anxious to maintain the goodwill of the manufacturers involved in the administration of the law; and in this he has been eminently successful. As Dr. R. E. Dyer, the Assistant Director of the Institute, pointed out at the hearings, "The act . . . has the support of the manufacturers".²² " . . . There is an understanding—a feeling between the manufacturers of these products and the hygienic laboratories in the administration of this act",²³ as Dr. Harrison observed. In the drafting of these regulations governing the sale of viruses, etc., the manufacturers are consulted.²⁴ The Act has always been administered with a view to maintaining the most cordial relations between the manufacturers and the Institute. This has had the advantageous effect of producing a conciliatory attitude on the part of the manufacturers. It has resulted in the concession of certain points; which they might have been loathe to concede, had they not felt that in the long run Dr. McCoy was treating them most fairly. And, in addition, it must not be forgotten that a government license is of great advertising value. Small wonder, then, that Dr. McCoy said at the hearings:²⁵

"The law . . . is working satisfactorily; it has the support of the medical profession and even of the manufacturers on whom its restrictions fall. The cordial cooperation of these two groups would be jeopardized by an amendment."

Yet the problem remains. Dr. McCoy has recommended licenses for scores of viruses, serums, toxins, and analogous pro-

21. These conclusions are based on conversations of the author with Dr. McCoy, and with Dr. Harrison who was entrusted with the enforcement of the law from 1922-1927.

22. *Id.* at 140.

23. *Id.* at 146.

24. *Ibid.*

25. *Id.* at 49.

ducts which he knows to be of no therapeutic value, while on some occasions he has refused a license on the ground that the product was useless.²⁶ Thus we have clearly presented a conflict between the desire of the administrator to keep the peace with the manufacturer and at the same time to protect the public. The fact simply is that the market is filled with vaccines, etc., of absolutely no value whatsoever which are sold under the pretense that they have the stamp of approval of the government. Dr. McCoy has a valid point, no doubt, when he observes that the medical profession doesn't agree on the therapeutic value of any vaccine or analogous product, and that this value can only be determined by clinical use on a scale which could be large enough if the product were licensed for sale in interstate commerce.²⁷

Nevertheless, this ought not to serve as an excuse for the foisting of worthless remedies on the public. To some extent the opinion of a minority of the medical profession must yield to the interests of the public. Certainly it should not be used by a few manufacturers to extract money from the ignorant public for a remedy thought by the great majority of the medical profession to be valueless. As Dr. Kramer observed at the hearings, if therapeutic value is not to be taken into consideration, it probably would be better not to attempt to regulate in any way the manufacture of vaccines.²⁸

The administration of this law raises many important problems of administrative law. The history of its administration points to the danger in placing too much discretion in the hands of the administrator. Yet regulation there must be. And there is no body outside of the National Institute of Health competent to deal with the problem. Only in this laboratory do we find men who are in constant touch with the vaccine problem. Yet

26. Confusingly enough, that therapeutic value is sometimes taken into account—even before the new regulations were issued in 1934 is evidenced by this statement from the ANNUAL REPORT OF THE SURGEON GENERAL, 1927, 74-75: "... up to the present time the data on the ... therapeutic value of the serum are inadequate to warrant recommendation for license." Or see *Hearings*, cited, *supra*, note 1, p. 28, at 149: MR. HAPGOOD: "Can you present to this committee a single bit of evidence from your files that you have ever, in granting a license, considered the question whether the claims were medically sound?" DR. HARRISON: "We do that all the time."

27. Dr. McCoy particularly stressed this to the author on January 31, 1935.

28. *Id.* at 77.

only with difficulty can even they determine the prophylactic or therapeutic value of a vaccine or analagous product. They are not equipped with clinical facilities for the administration of the vaccine to patients, in order to test their value.²⁹ Providing even that they had such facilities, absolute determination would be impossible. Still, there are a number of products now licensed which are almost certainly not of value therapeutically or prophylactically.³⁰

It will always be difficult for the Institute to formulate a yardstick for measuring "satisfactory evidence of therapeutic or prophylactic efficiency".³¹ Even providing that a yardstick is developed, there still remain licensed and on the market many products having no therapeutic value. For it is to be recalled that the new regulation requiring evidence of such value applies only to "new products". Is not the Institute laying itself open to possible action brought against it in the courts by manufacturers attacking the validity of this regulation? Much can be said in their favor, as the regulation stands. It surely could be called arbitrary, and possibly denies to the manufacturers due process of law when it discriminates between products licensed prior to March 13, 1934 (the date of the new regulations), and those licensed after this date. It must be added, however, that the staff of the Institute still appears to command the complete respect of the manufacturers, although it is still rather early to make any predictions. Their attitude may possibly change.

We cannot conclude without inquiring once again into possible reasons for difficulties in administering the Act of 1902, other than those to be found in the very nature of the subject. The added difficulties are not to be found by playing with a trick system of terminology or juggling certain abstract principles of administration. We have before us a body of men (not principles) the chief function of which is to carry on fundamental research into the cause, prevention, and cure of diseases affecting human beings. Incidentally, this body is entrusted with the inspection and licensing of manufacturers selling vaccines and

29. See *Id.*, 144-148 where this point is much stressed by Drs. Dyer and Harrison.

30. This is based on statements of the men at the Institute made to the author personally and made at the hearings cited.

31. This is quoted from the Regulations of March 13, 1934, p. 3.

analagous products. This duty is not one to which the men are trained, or in which they are *particularly* interested. Since their function primarily is to investigate the laws of nature it is quite natural that we find at the head of the Institute a man who desires peace in order that he and his associates may carry on their investigations. Couple this with Dr. McCoy's firm conviction that the practice of medicine should be free to every physician from outside control, and we think that some of the important reasons for the difficulties in the administration of this law can be found. And any solution of the problem must take heavily into account the character and bias of the administrators, for problems of administration, above all else, are problems of personnel.³²

PART III:

COOPERATION WITH THE UNITED STATES PHARMACOPOEIA

THE National Food and Drug Act of 1906 makes the United States Pharmacopoeia and National Formulary the legal standards for drugs.³³ And the Constitution of the United States Pharmacopoeial Convention, Article II, Section 2, provides that delegates appointed by the Surgeon-General of the United States Army, the Surgeon General of the United States Navy, the Surgeon General of the United States Public Health Service, shall also be members of the corporation and each shall be entitled to send three delegates to the meetings of this corporation.³⁴

The Surgeon General of the Public Health Service appointed members of the staff of the National Institute of Health to represent the Service at the 1910, 1920, and 1930 Conventions of the Pharmacopoeia. These delegates served on a number of committees, the most important of which for our purposes being the one on "Biologic Products and Diagnostical Tests". Both in the 1920 and 1930 conventions, Dr. McCoy, Director of the National Institute of Health served on this Committee as chairman.³⁵ Together with Dr. McCoy on this subcommittee served

32. The substantial benefits to the Institute (as distinguished from the public) derived from the administration of this law are treated in Part III of the concluding chapter.

33. See Preface, U. S. PHARMACOPOEIA, 1920, p. 20. All references, unless otherwise noted, are to the 1920 edition.

34. *Id.* at p. xxxiii.

35. *Id.* at vii.

Dr. John Anderson, Director of the research laboratories of E. R. Squibbs, and former Director of the Hygienic Laboratory. This subcommittee has the duty of reporting to the Convention its recommendations as to the products to be included in the Pharmacopoeia. And the Convention has set a standard for such admissions. Since the object of the Pharmacopoeia among other things "is to provide standards for the drugs and medicines of therapeutic usefulness or pharmaceutic necessity sufficiently used in medical practice throughout the United States and its possessions",³⁶ only those "serums and other biologic products of approved usefulness, if standardized by a department of the Federal Government, [will] be admitted to the Pharmacopoeia".³⁷ We find in the 1920 edition of the Pharmacopoeia only six of those 102 vaccines and analagous products approved for license by the Director of the National Institute of Health for the same year.³⁸ In the 1930 Edition we find only 15 of the 137 approved for license, representing a large relative, but only a small absolute, gain from the preceding decade. It must be remembered that this does not prevent the manufacture of drugs, not described in the Pharmacopoeia but does signify that those not included have not met its standards as described above.

We have, then, a committee representing both the interests of the manufacturers and of the government, which, in effect, makes law. No instances have yet been found where an irreconcilable disagreement has occurred between the representatives of the Institute and those of the manufacturers.³⁹ The quality of disinterestedness assumed by the members of the Pharmacopoeia Conventions has always been of the highest, and the scientific method and outlook on the part of their members have always triumphed over any personal bias. For they have a long and unbroken tradition behind them. And, although numerous complaints against the decisions of the Convention can be found, the author has been unable to uncover any relating to their decisions on the admission of biologics to the Pharmacopoeia. Further, despite a few prominent exceptions, the

36. *Id.* at xlv.

37. *Id.* at xlvi.

38. *Id.*, 9-125. These products are: tetanus antitoxin, diphtheria antitoxin, crude tetanus antitoxin, arsphenamine, neoarsphenamine, and small-pox vaccine. See also Appendix F *infra*.

39. Dr. McCoy tells the author that voting is very often unanimous.

methods employed by the manufacturers of vaccines, serums, etc., to attain their ends have always been of a higher character than those of manufacturers of patented medicines. For the former are sold only to the medical profession, and the comparatively high ethical standards of the profession will not long tolerate grossly fraudulent practices if they are aimed directly at the profession, and cannot rely on the ignorance of the layman for protection. Yet despite the high standards of the physicians it must be observed that a more important explanation for the higher ethical plane (on which the vaccine manufacturers operate) is to be found in the fact that government regulation of these products has proved more effective than that of other drugs. The manufacturers of these products simply cannot employ the methods in selling to physicians that are used by proprietary medicine manufacturers in selling their wares to the public at large.⁴⁰ Also to be observed is the fact that exclusion from the Pharmacopoeia does not prevent the manufacture of these products; and, therefore, the objections we have noticed in Part I of this chapter concerning infringements on the free, unrestricted practice of medicine do not apply here. This probably explains the difference in Dr. McCoy's attitude toward licensing vaccines on the one hand, and their inclusion in the Pharmacopoeia on the other. In the latter case, his objections on behalf of the individual doctor do not apply.

* * *

It must not be thought that the participation of the National Institute of Health in the work of the committee on biologic products constitutes the only example of cooperation with the United States Pharmacopoeia Convention. Informal cooperation between these bodies has occurred almost since the founding of the Hygienic Laboratory, as may be seen from an examination of the Annual Reports of the Surgeon General. Much work has been done for the Pharmacopoeia on the physical constants of the chemicals contained therein, on methods for the standardization of certain biological products, and in countless other ways. Such cooperation not only has the great advantage of creating

40. Despite the Pure Food and Drugs Act of 1906, it cannot be said that government regulation of the sale of these products has proved effective. Additional statutory authority must be granted, such as that proposed in the Copeland-Tugwell bill. On this question see HERRING, *Food, Drugs, and Poison*, in *CURRENT HISTORY*, April, 1934.

friendly relations between two important scientific agencies, but also obviously adds to our general knowledge of the biological sciences.

PART IV:

COOPERATION WITH INTERNATIONAL PUBLIC HEALTH AGENCIES

THE National Institute of Health sends members of its staff to various international conferences on matters of international concern in public health either as official or unofficial representatives of the United States Government. Perhaps the most important of these international bodies is the committee on standardization of biologics, a subcommittee of the health organization of the League of Nations. Although such collaboration has been variously termed "unofficial collaboration",⁴¹ "informal collaboration",⁴² cooperation in an "advisory capacity",⁴³ cooperation as a "consultant",⁴⁴ in fact it is one more example of the participation of the United States in the work of the League. It is a commonplace in America that matters of public health research know no national (let alone state or local) boundaries.

The advantages of this sort of international cooperation are many and various, and some of them are often not appreciated by the casual observer. Because the United States is far in advance in its legislative and regulatory control of biologic products⁴⁵ its advice is much in demand by those in charge of this problem in other countries. Thus through such cooperation as this, standards of biologic products are raised throughout the world, and international units are adopted. An even more valuable result of these conferences is that leaders in science over the entire globe are brought together and as a result can compare methods. Furthermore, it enables members of the Institute's staff to visit prominent European laboratories and observe at first hand the work performed, the methods employed, and the results obtained. Perhaps most important of all is the fact

41. ANNUAL REPORT OF THE SURGEON GENERAL, 1928, p. 77.

42. *Id.*, 1927, p. 79.

43. *Id.*, 1925, p. 59.

44. *Id.*, 1924, p. 55.

45. *Id.*, 1923, p. 58.

that it establishes friendly relations between citizens of different nationalities.⁴⁶

PART V:

COOPERATION WITH PRIVATE HEALTH ORGANIZATIONS

INFORMAL cooperation for a variety of purposes occurs with a variety of agencies; both private and public; both state and local; as well as with other departments of the national government.

Cooperation with private health agencies has included a good deal of work with the Rockefeller Foundation. Professor Stiles served as Scientific Secretary of the Rockefeller Commission for the Eradication of Hookworm Disease,⁴⁷ and work has been undertaken in cooperation with the International Health Board of the Foundation.⁴⁸ Assistance was also rendered the laboratory by the Rockefeller Institute's laboratory at Princeton in connection with some research into the therapeutic value of "Sancrysin".⁴⁹ Cooperation between the Institute and the Society of American Bacteriologists, the H. K. Mulford Company, Parke, Davis and Company, the American Public Health Association, The American Medical Association, the American Pharmaceutical Association, and many other similar agencies, has occurred from time to time.

PART VI:

COOPERATION WITH OTHER GOVERNMENTAL AGENCIES

ABSENCE of formalism is to be noted in the cooperation of the Institute with other governmental agencies. The laboratory has aided the Bureau of Standards,⁵⁰ the Bureau of Animal Industry, the United States Compensation Commission, the Bureau of War Risk Insurance, the Bureau of Chemistry, the Federal

46. Some of the other international conferences in which members of the laboratory staff have represented the United States are: International Conference for the Unification of Heroic Remedies, International Congress of Pharmacists, International Conference for the Study of Cancer, International Conference on Alcoholism, and International Medical Congress. In addition, Professor Stiles, Chief of the Division of Zoology from 1902-1931, served throughout this period as an officer of the International Commission on Zoological Nomenclature, an organization for the adoption of a standard international nomenclature for zoological terms.

47. *Id.*, 1910, p. 53.

48. *Id.*, 1921, p. 95.

49. *Id.*, 1925, p. 55.

50. Complete exchange in the use of the facilities of this bureau and the Institute is particularly to be noted.

Trade Commission, the Surgeons General of the Army and Navy, the Chemical Warfare Service, the Department of Justice, the Bureau of Mines, the Civil Service Commission,⁵¹ and the Bureau of Internal Revenue.⁵² Such extensive cooperation, apparently with little or no unnecessary formality, has obvious lessons for other governmental bureaus.⁵³

In addition numerous specimens of various kinds are examined for state and local health officers. Further than this, the laboratory is constantly playing host to state and local health officers for the purposes of rendering advice and instruction to them. "This is highly desirable, since it encourages uniformity in laboratory work and stimulates cooperation between such authorities and the Federal Public Health Service".⁵⁴ As we have observed above (page 25) the Act of May 26, 1930, made this availability of the facilities of the Institute to state, county, and local public health agencies mandatory, thus giving statutory recognition to a long-standing practice.

In a sense the entire field of investigation of contagious and infectious diseases might be said to constitute one of cooperation between the laboratory and state and local health agencies. For it is largely through requests for assistance to these agencies that the Institute carries on its investigations.⁵⁵ This sort of cooperation is but one more example of the Institute's aid to state and local authorities in the form of better-trained personnel coupled with greater equipment and larger financial resources. States are not only willing but anxious to bury the cry of "Rights" and call upon the national government for assistance in matters of public health research. For their resources for

51. This cooperation has several times taken the form of members of the Division of Pharmacology serving as examiners for the Commission. *Id.*, 1912, pp. 46-47.

52. The Division of Pharmacology cooperated in the "drawing up of regulations for the execution of the anti-narcotic and prohibition laws." *Id.*, 1920, p. 83.

53. This subject is to be discussed further in the final chapter.

54. *Id.*, 1912, p. 47.

55. Many are the examples which could be cited. The most important in recent years are the investigations of an amoebic dysentery epidemic in Chicago in 1933, the research on psittacosis commenced in 1930 at the request of the Baltimore health officers and others throughout the country, the investigation of the St. Louis epidemic of so-called lethargic encephalitis in 1933. The work Dr. Goldberger and his assistants carried out over a period of years commenced as the result of a request from certain health officers in the South. Dr. Dyer's research on typhus fever is still another example. And Dr. Edward Francis' research in the field of tularaemia commenced as the result of a request from the State Health Commissioner of Utah to the Surgeon-General of the Service.

such work are inadequate, and their personnel in most cases is not trained for such work.

Dr. Francis, who has been stationed at the laboratory since 1901, has long maintained that these contacts of the laboratory with all parts of the country constitute one of the determining organizational factors contributing toward its success.⁵⁶ They prevent the research workers from becoming insulated against the outside world, and make possible a constant flow of problems into the Institute. This guards against that sterilization of research, often apparent in university medical schools and even in private research institutes.⁵⁷

The Institute has rendered particularly valuable cooperation in the form of courses of instruction to Naval Medical School students. In the fiscal year ending June 21, 1922, for example, courses of instruction were given to eleven officers of the Public Health Service⁵⁸ and four students under the Vocational Educational Board, and "seven doctors from foreign countries spent from three to eight weeks each studying technique and laboratory methods pertaining to public health".⁵⁹ Very occasionally the Director has made the facilities of the Institute available to private scientists for extended periods of time. The value of this sort of assistance is clear, and it has been marked by a most cordial willingness on the part of the staff of the Institute to aid fellow-workers. This spirit is universal among scientists, but no little of it is due to the spirit which Dr. McCoy has developed among the members of the staff. It is but one more example of that informality and absence of red tape which has characterized the administration of the Institute. No cries of "Bureaucracy and Regimentation" can be raised against this bureau. Dr. McCoy and his assistants have a healthy loathing of such methods, and the Director has not allowed twenty years of his administration to harden his devotion to the laboratory into that type of devotion which has led in all too many instances to obstructionism.⁶⁰

56. Conversation of the author with Dr. Francis, December 25, 1934.

57. See final chapter where the Institute is considered in relation to its environment, and this question is discussed at length.

58. See Chapter III where this course is dealt with in detail.

59. *Id.*, 1922, p. 66.

60. The more general implications of this attitude on the part of the Institute's staff, and its lessons—if any—for other governmental agencies are treated in the final chapter.

CHAPTER III.

PERSONNEL

PART I: INTRODUCTORY

IN December of 1929 various sections of the United States were in the grip of an epidemic of psittacosis or parrot-fever. The epidemic was steadily spreading and constituted a national public health problem when, on January 16, the Hygienic Laboratory commenced work on the cause, prevention, and cure of the disease. On January 27 one "Shorty" Anderson, an attendant at the laboratory, who was aiding Dr. Armstrong in his work on the disease, contracted psittacosis. On February 4, Anderson died. On February 7, Dr. Armstrong also contracted parrot-fever. Dr. McCoy then ordered all members of the staff to cease work on the disease, and he alone proceeded with the experimentation in a small room in the basement of the main building. On February 15, Night Watchman Lanham became ill with the fever. Then Bacteriologist Sadie Carlin contracted Psittacosis. On March 10, Dr. Hasseltine also contracted the disease. The next day, March 11, Mr. Morgal, foreman of the Laboratory, went to the hospital for the same cause. Mr. Ernest Millar of the Laboratory staff became ill on March 12. On March 13 Mr. Blackwell, a cleaner, contracted psittacosis. And finally, on the same day, Dr. Edward Francis also went to the hospital. Then, on March 15, for the first time in its history, Dr. McCoy ordered the doors of the Laboratory closed and sealed. Fumigation experts released large quantities of cyanide gas into the sealed building. All further work on psittacosis at the Laboratory¹ ceased.

Throughout all those harrowing weeks, although each person expected to be the next to be seized by the horrible disease,

1. Later, however, after recovery, Dr. Armstrong, with Mr. Lanham acting as his assistant, worked in a deserted building at Curtis Bay Quarantine Station, Maryland, on the disease. For an accurate and dramatic account of this incident, see DEKRUIF, *MEN AGAINST DEATH* (1932) c. 6.

only one of the 130 employees at the laboratory resigned.² It will be the ultimate purpose of this chapter to discover, if possible, the reasons for the excellent esprit de corps among the members of the entire staff of the Institute, as well as to consider some other general problems concerning the personnel of the National Institute.

PART II: RECRUITMENT OF COMMISSIONED OFFICERS

ROUGHLY speaking, there are two different classes of employees at the Institute: Commissioned officers, and employees coming under the Civil Service Act and Regulations. These latter may be subdivided into five classes: professional, sub-professional, attendants, clerical and administrative, and laborers. They will be treated separately in Part V.

The basic act dealing with commissioned personnel in the Public Health Service is that of January 4, 1889,³ which provided that medical officers of the Service are to "be appointed by the President, by and with the advice and consent of the Senate; and no person shall be so appointed until after passing a satisfactory examination in the several branches of medicine, surgery, and hygiene before a board of medical officers". These examinations are conducted "according to rules prepared by the . . . Surgeon General and approved by the Secretary of the Treasury and the President". The Act further provided "that original appointments in the service shall only be made to the rank of assistant surgeon;⁴ and no officer shall be promoted to the rank of passed assistant surgeon until after four years' service and a second examination aforesaid; and no passed assistant surgeon shall be promoted to be surgeon until after due examination".

2. It should be added that a total of 42 cases of illness contracted as a direct result of laboratory work have occurred since the founding of the Laboratory. Of these, five have resulted in death. Five laboratory cases of undulant fever have occurred, one of which was that of Alice C. Evans whose work on this disease has been most important. Unfortunately, she has never completely recovered from the effects of the fever. "Every person who has ever experimented with tularaemia at the Institute, a total of six, contracted the disease without, however, a single fatality". See Foltz, *National Institute of Health* (1936) 5 AMERICAN SCHOLAR 495, at 498.

3. 25 STAT. 639.

4. The Act of April 9, 1930, made original appointments to the rank of passed assistant surgeon possible. See Appendix A, *infra*.

Section seven of the Act of April 9, 1930, constitutes an exception to these provisions.⁵ This section provides that "whenever commissioned officers of the Public Health Service are not available for the performance of permanent duties requiring highly specialized training and experience in scientific research, the Secretary of the Treasury shall report that fact to the President with his recommendations, and the President . . . is authorized to appoint, by and with the advice and consent of the Senate, not to exceed three persons in any one fiscal year to grades in the regular corps of the Public Health Service above that of assistant surgeon, but not to a grade above that of medical director"

This provision follows one of the sections in the Act of July 1, 1902,⁶ which provides "that there shall be appointed by the Surgeon General, with the approval of the Secretary of the Treasury, whenever, in the opinion of the Surgeon General, commissioned medical officers of the Public Health . . . Service are not available for duty by detail, competent persons to take charge of the divisions, respectively, of chemistry, zoology, and pharmacology of the hygienic laboratory, who shall receive such pay as shall be fixed by the Surgeon General, with the approval of the Secretary of the Treasury". Since the passage of this Act eight men have held positions at the laboratory under this provision and were designated "Professors" of their respective branch of science. Five of these men resigned their positions,⁷ while two of them were appointed commissioned officers with the rank of medical director under the provision of the Act of April 9, 1930.⁸ But one professor, Dr. Claude S. Hudson, Chief of the Division of Chemistry, remains.

The provision in the Act of April 9, 1930, is an example of the unique position of the Institute in the Public Health Service. The Congress has always been willing to make an exception

5. 46 STAT. 150, and Appendix A where the Acts are given in full.

6. 32 STAT. 712, and Appendix A, *infra*.

7. Dr. Reid Hunt, Professor of Pharmacology; Dr. Joseph H. Kastle, Professor of Chemistry; Dr. Earl B. Phelps, Professor of Chemistry; Dr. Edward C. Franklin, Professor of Chemistry; and Dr. W. Mansfield Clark, Professor of Chemistry.

8. Dr. Charles Wardell Stiles, Professor of Zoology, and Dr. Karl Voegtlin, Professor of Pharmacology (successor to Dr. Hunt). Dr. Stiles has since retired, and no successor to his position as head of the Division of Zoology has yet been appointed.

in the case of the laboratory if the exigencies of the work require it. This exception has the added advantage of making possible the retirement with pay of the men formerly designated as professors by making possible their appointment to the commissioned personnel. It is quite likely that the five resignations which occurred among the professors at the laboratory prior to the 1930 Act would not have occurred if provision had been made for their eventual retirement with pay.

Since commissioned personnel at the Institute are detailed from general duty in the Public Health Service to the laboratory, it is necessary first to examine the process of recruitment into the Service itself. Men are only admitted into the two lowest ranks: assistant surgeon, or passed assistant surgeon. Candidates for the former rank must be graduates of reputable medical, dental, engineering (sanitary engineering course), or pharmica schools, they must be between the ages of 23 and 32 inclusive, and they must submit "at least two testimonials as to their professional and moral character".⁹ In addition, they "must have passed a satisfactory physical, academic, and professional examination before a board of commissioned officers of the regular corps".¹⁰ An oral examination is also given, which comprises questions to show the candidates' "general knowledge, especially of literature, current events, and public affairs".¹¹ A candidate seeking original appointment to the grade of passed assistant surgeon in addition to the above requirements must also "have had two years' post-graduate instruction, research, or teaching in some specialized branch of medicine, dentistry, sanitary engineering, or pharmacy, and at least two years' practice in his specialty".¹² If the candidate has successfully met these requirements, his name is placed on a list, in the order of "seniority as determined by the date of the completion of their examination, and their relative standing on the merit roll reported by the board of examiners".¹³

9. REGULATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE, 1931, p. 7. This, and the following paragraph, are based on Article II of the REGULATIONS, pp. 7-21.

10. *Id.*, at 8.

11. *Id.*, at 11.

12. *Id.*, at 8. Candidates for this rank, however, can be 39 years of age or under, rather than 32 or under as in the case of candidates for the rank of assistant surgeon.

13. *Id.*, at 13-14.

The regulations provide that as soon as possible and wherever practicable "as a means of enlarging their experience, newly appointed commissioned officers . . . shall be detailed successively, . . . to hospital, quarantine, immigration, laboratory, and field public health stations, and to educational and research institutions for special studies of scientific problems relating to public health".¹⁴ It is while the newly-appointed¹⁵ officers are stationed at the Institute as provided above that their senior officers have an opportunity to study them and to observe their abilities. The young officers are given from a four-to-six months course of study which deals with the work in all the divisions of the Institute; *viz.*, pathology and bacteriology, zoology, pharmacology, and chemistry. The older officers who are instructors in the course are "constantly on the lookout for men with scientific instinct", as Dr. Harrison put it.¹⁶ "If they've got ideas we keep them in mind".

It must not be thought, however, that the student-officers are immediately placed upon the staff of the Institute. Even if vacancies at the laboratory permit, the men who show a peculiar aptitude for scientific research are sent wherever practicable through the two-year period in which they visit all (or as many as possible) of the departments of the Service, as mentioned above. Then as vacancies occur in the staff of the commissioned officers at the Institute, these men who showed especial talent in research are transferred to the laboratory. The commissioned personnel at the Institute insist that the training these men receive in the "sticks", as they term it, has a definitely salutary effect on the discipline of the officer. They urge that it increases his moral fiber and trains him to meet difficult or even dangerous practical public health problems as they arise.¹⁷

Furthermore, a good number of the Institute's staff have been drafted into the laboratory because of talent shown in the course of work in the field; either domestic quarantine, foreign quarantine and immigration, marine hospitals, or other field public health stations. If, during the course of work in one of these

14. *Id.*, par. 46, p. 14.

15. Quite often, of course, it is some years after appointment in the Service that they visit the laboratory for training, but they are almost invariably not above the grade of passed assistant surgeon.

16. Conversation with Dr. Harrison on December 24, 1934.

17. Conversation with Drs. Harrison, Armstrong, Lillie, Pasternack, and others on December 24, 1934.

divisions of the Service, a young officer should make some valuable scientific observations or show talent in research in some other manner, this fact would be brought to the attention of the Director of the Institute, and the doctor would be kept in mind when a vacancy occurred or the staff was enlarged.¹⁸

Still other officers may show a latent research talent in their written examinations for promotion which would lead to a transfer to the Institute.¹⁹

It should be noted in passing that the Service will not accept candidates for commissioned posts who are willing only to work in the Institute. It feels that the general training received in the field is indispensable for all medical officers. And in addition, all commissioned personnel must be prepared at a minute's notice to carry on investigations in the field.

Once assigned to work in the Institute, an officer, providing his work continues to be satisfactory, is likely to remain there. This is an unwritten exception to the regulations of the Service which provide that "they will be subject to change of station as the exigencies of the service may require".²⁰ This is another example of the unique position of the Institute. No general rule, even if it requires a Congressional statute to change it, will be held unalterable if it be found necessary to the efficiency of the laboratory that it be excepted.²¹

If, on the other hand, an officer is found to be unsuccessful in research work, he is transferred to another division of the Service. This involves no demotion in rank, while at the same time, it prevents crowding the laboratory with men who are unsuited for their work.²²

Thus does the Institute recruit its personnel. In the first place, it can be seen that men do not enter the Service without having adequate professional preparation. In addition to this, they must be men who have had some academic training. Finally,

18. Dr. Armstrong, for example, was transferred to the laboratory following some work he did on botulinis while in the field. In 1901, Dr. Francis made some valuable observations on a worm disease while in the quarantine division, whereupon he was transferred.

19. Conversation with Dr. Francis on December 25, 1934.

20. REGULATIONS, cited, *supra*, note 9, p. 48, par. 32, p. 9.

21. Conversation with Dr. Harrison and others.

22. Elaborate procedure for discipline and dismissal of commissioned personnel is given in the REGULATIONS (see Article X, pp. 63-79), but it is not discussed here since disciplinary action against commissioned personnel has not occurred at the Institute.

the young officer is invariably in excellent physical condition. But these qualifications alone do not secure a doctor a position at the Institute. He must have shown positive ability in research. It is here that the unique position of the National Institute becomes apparent. For, in a sense, it could be said that the entire Public Health Service serves as a recruiting field for the laboratory. From a field of approximately 370 commissioned officers, the Institute selects about eighteen or twenty doctors to carry on research.²³ Thus they are enabled to select those most suitable.

The Institute's unique position becomes even more apparent when we consider the mechanism for selection. The character of a Doctor's work in the field or his work in examinations for promotion provide excellent means of judging his ability. Most interesting and unique of all, however, is the possibility to observe his talents at first hand during his course of study in the laboratory. The Institute has a continuous stream of officers from which it may choose those, if any, who give evidence of ability in research. This constant stream of fresh blood is a remarkably good method of recruitment. It prevents stagnation, and affords an opportunity to ascertain the abilities of the officer.

A further factor in securing and keeping the best men is the flexibility of the Service regulations where the Institute is concerned. Although, in general, the Service may be said to have a mobile corps, the laboratory is an exception. We have already noted that Congress has not hesitated to permit scientists to enter the Service at an older age than normally. There is no greater proof of the wisdom of Dean Brigg's remark that rules exist to be broken, than this.²⁴

In closing this part of the discussion of personnel it is important to emphasize once again the influence which Dr. McCoy possesses in selecting the staff for the Institute. His superiors invariably accept his word; and his judgment in selecting, as well as directing,²⁵ capable doctors for work in the Institute is an enormously important factor in its success.

23. ANNUAL REPORT OF THE SURGEON GENERAL, 1934, pp. 122 and 124.

24. See Part V of this chapter where further examples of such exceptions are noted.

25. See Part VI of this chapter.

PART III: PROMOTION OF COMMISSIONED OFFICERS

PROMOTION in the Public Health Service (and therefore at the Institute, also) is dependent upon length of service and upon merit. Candidates for promotion to the rank immediately above must have completed a definite number of years in the Service. The Act of April 9, 1930, provides that "commissioned officers . . . after examination under regulations approved by the President, shall be promoted according to the same length of service and shall receive the same pay and allowances as are . . . authorized for officers of corresponding grades of the Medical Corps of the Army" with certain exceptions.²⁶ Therefore, assistant surgeons in order to be promoted to the rank of passed assistant surgeon must have served three years, while promotion from this rank to that of surgeon requires twelve years of service. Surgeons, in order to be promoted to the rank of senior surgeons must have served twenty years, and the latter must have served 26 years in order to become eligible for promotion to the rank of medical director.²⁷

"Examination for promotion to a grade below that of senior surgeon²⁸ shall be chiefly in writing, but may be supplemented . . . by an oral examination on any subject connected with the official and professional duties of the officer",²⁹ and "when an officer is found morally disqualified, he shall be certified as not fit for promotion".³⁰ In addition to the medical examination to determine his professional skill, the candidate's "judgment, tact, initiative, administrative ability, industry, dependability, and loyalty" are to be considered.³¹ If an assistant surgeon "shall have been found not qualified for promotion for reasons other than physical disability incurred in line of duty", he "shall have his commission terminated . . . and . . . shall be paid six months' pay and allowances",³² while a passed assistant surgeon in the same category "shall be paid one year's pay and

26. § 9, 46 STAT. 150.

27. Until 1930 in addition to the merit and seniority provisions men can only be promoted to the rank of surgeon or above as vacancies occur.

28. For promotion above this grade, the examination is oral and more informal.

29. REGULATIONS, cited, *supra*, note 9, p. 48, at 9.

30. *Id.*, par. 56, p. 16.

31. *Id.*, p. 18.

32. *Id.*, at 17, and Act of April 9, 1930, 46 STAT. 150, § 9, c. (1).

allowances".³³ On the other hand, if officers in the grade of surgeon or of senior surgeon shall be found not qualified for promotion "they shall be reported as not in line of promotion, or placed on waiting orders and paid at the rate of 2½ per centum for each complete year of active commissioned service . . . , but in no case to exceed sixty per centum of his active pay at the time he is placed on waiting orders".³⁴ These provisions have been found to be a satisfactory method of keeping the Service free from incapable personnel, and also serve as a stimulant to the younger officer to improve not only his professional abilities, but his general administrative capacities as well.

We can conclude that promotion in the Public Health Service is dependent in greater measure upon length of service than upon merit. To be sure, an officer must demonstrate some intellectual and moral development, but these advances are probably simply those which any normally intelligent individual would exhibit as he advanced in years and experience. It might appear to the novice that if more emphasis were placed on promotion upon merit that greater incentives to accomplishment would be provided. The difficulties, however, in measuring relative degree of merit in public health work are apparent. Such a system would quite possibly introduce favoritism among the examiners. Since no absolute standards can be established, it would lead to more or less arbitrary decisions.³⁵ Taken altogether, the present system of promotion based upon length of service, provided the officer shows a reasonable advance in ability, is most suited to the needs of the Public Health Service.

The really significant fact about promotion at the Institute (we are not concerned with it elsewhere in the Service) is that it means little to the research worker other than its concomitant increase in salary; and even this advance in compensation is not to be overemphasized.³⁶ "The man who has good ideas", Dr. Harrison says, "is chiefly interested in working on them."³⁷ Promotion means little so long as he is able to provide himself

33. REGULATIONS, cited, *supra*, note 9, p. 48, at 19, and 46 STAT. 150, § 9, c. (2).

34. *Id.*, at 20, and 46 STAT. 150, § 9, c. (3).

35. Dr. Harrison, for example, is of this opinion, which he made quite clear to the author in a conversation on December 24, 1934.

36. The question of compensation is treated in the next part of this chapter.

37. Quoted from a conversation with him on December 24, 1934.

and his family with the simple comforts of life, to give his children a decent education, and to save a little for emergencies. In the main, the research worker at the Institute is interested in the development by experiment of his ideas, and is little concerned with promotion. This he takes as a matter of course; it is ideas which thrill him, and their development provides the incentive—not promotion. In the main, the same reasoning applies to compensation, and it is to this subject that we now turn.

PART IV: COMPENSATION OF COMMISSIONED OFFICERS

BELOW is given a table of the minimum and maximum salaries of commissioned officers for each rank in the Public Health Service. The sums include allowances for rent and maintenance, and it is the difference in these allowances resulting from whether or not the officer is married that necessitates the two sets of sums.³⁸

<i>Rank</i>		<i>Married</i>	<i>Single</i>
ASSISTANT SURGEON	Minimum	\$3,050	\$2,700
	Maximum	\$4,650	\$4,300
PASSED ASSISTANT SURGEON	Minimum	\$3,840	\$3,340
	Maximum	\$5,940	\$5,440
SURGEON	Minimum	\$4,850	\$3,940
	Maximum		
SENIOR SURGEON	Minimum	\$6,813	\$5,900
	Maximum	\$7,200	\$6,700
MEDICAL DIRECTOR	Minimum	\$7,200	\$6,700
	Maximum	\$7,200	\$6,700

38. The system of compensation for commissioned officers of the Service is very complicated, and the amounts are frequently changed. The sums, therefore, are only approximate. The minimum salaries are arrived at by adding the sums for maintenance and rent to the base pay. These latter sums vary in accordance with whether the officer is married or single. The maximum salaries are determined by adding the sums for maintenance and rent together with that additional amount—5%—which accrues for each period of three (but only up to thirty) years in the Service to the base pay. This increase is independent of rank and is based solely on length of service.

The following passage is quoted at length because it serves as an excellent example of much loose talk that has been uttered on the problem of compensation:³⁹

"Some twenty years ago, Congress, with rare vision, established the Hygienic Laboratory . . . The staff has included some of the foremost representatives of chemistry, pharmacology, bacteriology, and medical zoology, the specialities most needed for a cooperative attack on the great problems of health in the country. But subsequent Congresses have failed to provide for any considerable growth of this laboratory; it stands virtually as it was two decades ago [sic!] . . . The people of this country spend \$500,000,000 a year on drugs, in addition to other large sums for other means of obtaining relief from suffering and disease. Would it not 'pay' to spend a million or two a year to determine whether this great drug bill could not be reduced by the discovery of better, fewer and cheaper drugs as well as of other means of preventing disease and of obtaining relief from pain?"

In scientific research the quality of the work depends to a much less degree than in other lines of labor upon amount of compensation. Men of the caliber of Goldberger,⁴⁰ Francis, McCoy, and others at the Institute, cannot be produced simply by increasing the number of workers at the Institute, or by increasing the compensation of those already employed, or by increasing the size of the Laboratory.⁴¹ First of all, men of this caliber do not exist in great numbers. And, secondly, those who do have great ability are bound to exercise it regardless of their personal material circumstances.

The problem of incentives to creative men in all fields is a difficult one; difficult because of its indeterminability in exact terms. It involves an appreciation of the creative will. The study of the history of science is the most inspiring study which I have yet encountered—inspiring because that history, more than all others, is one of the triumph of ideas over temporal desires. The urge to discover recognizes no earthly master; it

39. The passage is taken from an editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, vol. lxxviii, No. 11 (March 18, 1922), p. 807, and is quoted approvingly in MOORE, PUBLIC HEALTH IN THE UNITED STATES, (1923).

40. His work on pellagra is of incomparable value, and the Institute suffered a great loss upon his death a few years ago.

41. This is not meant to imply that the facilities should not be increased necessarily, but it will be noted that even when the passage was written (1922) the laboratory had been steadily increasing in size since its foundation in 1901. (See Chapter I, *supra*).

serves no earthly object, because it is dedicated to the pursuit of an idea.

"To be a scientist—it is not just a different job, so that a man should choose between being a scientist and being an explorer or a bond-salesman or a physician or a king or a farmer. It is a tangle of very obscure emotions, like mysticism, or wanting to write poetry; it makes its victim all different from the good normal man. The normal man, he does not care much what he does except that he should eat and sleep and make love. But the scientist is intensely religious—he is so religious that he will not accept quarter-truths, because they are an insult to his faith'."⁴²

To imply that the achievements of the Institute can be increased simply by increasing the compensation of the scientist, and by increasing the facilities of the laboratory, is not a valid implication. Creative geniuses are too rare and their spirit too independent of material circumstances.

On the other hand, we do not wish to imply that the salaries paid to commissioned officers at the Institute should not be raised somewhat. It is generally felt at the laboratory that the salaries for officers in the rank of assistant surgeon and passed assistant surgeon should be increased. Particularly if the officer is married, a salary of somewhat less than \$3,000⁴³ in the first case, and around \$4,000 in the latter appears to be rather low. The officers in these two ranks, particularly the passed assistant surgeons who may serve in this grade for many years—almost invariably more than ten—are known to have a difficult time supporting their wives and children.⁴⁴

Perhaps the salaries of the other grades should also be raised somewhat, but it must always be borne in mind that if they were greatly increased, outside pressure might be brought to bear upon the Institute for the securing of commissions. Very attractive salaries might produce very unattractive interference with the personnel system of the Public Health Service. We can only repeat that the value of scientific discoveries cannot be measured in monetary terms. The work of the late Dr. Gold-

42. Dr. Gottlieb talking to Dr. Arrowsmith—from LEWIS, ARROWSMITH, (1925), 279.

43. It must be remembered that the minimum salary listed on page 58 of this study is almost invariably the maximum for assistant surgeons. Even if it is above the minimum, it is but slightly so.

44. Conversation with Drs. Harrison, Lillie, and Armstrong. These men all hold the rank of surgeon, and they feel that the salaries for surgeons and ranks above are probably adequate.

berger of the Institute of Health on pellagra resulted in the saving of thousands of lives. Who would be materialistic enough even to attempt to measure the financial value of this work.

We must not forget that the Institute has been able to retain the vast majority of its greatest research men despite the relatively low salaries. We have already mentioned in the preceding chapter the freedom of the Institute from deleterious environmental influences—influences which are quite often present at university and private research institutes. Most scientists resent such interference, and consequently, would prefer a position where these influences were not present even at lower salaries.

PART V

RECRUITMENT, COMPENSATION, AND PROMOTION OF SCIENTIFIC PERSONNEL UNDER THE CIVIL SERVICE COMMISSION

WORKING at the National Institute of Health are some 116 men and women coming under the jurisdiction of the Civil Service Commission. The great bulk of these—87—are non-scientific employees serving either as clerks, administrative assistants, attendants, or laborers. The 29⁴⁵ persons comprising the scientific personnel (in addition to the regular commissioned officers) are appointed “according to the needs of the service and in conformity with civil service law and regulations”, “after qualifying in a scientific profession”.⁴⁶ The examinations are of the unassembled type, and consist of five references, a record of the candidate’s academic and professional career, together with a list of his published work in his particular field of endeavor. As vacancies occur at the Institute, the Civil Service Commission is notified, whereupon from three to eight (but usually four) names are sent to the Director, who in turn refers the list to the chief of the particular divisions at the Institute in which the vacancy has occurred. Thereupon, the chief communicates with each of the five persons listed as references, and inquires as to the candidate’s professional ability, training, character, and personality; and selects one from the first three upon the basis of the answers received, together with the candidates’

45. These figures are to be found in, ANNUAL REPORT OF THE SURGEON GENERAL, 1934, p. 124, and do not include fifteen part-time consulting experts.

46. REGULATIONS, cited, *supra*, note 9, p. 48, at 25.

record and accomplishments. If none is satisfactory to the chief of the division, the remainder of the names on the list (if there be more than three) are considered. If, by chance, none of the first list of names is satisfactory to him, a new set of names is tendered him by the Commission. But in this event, the head of the division at the Institute must indicate to the Commission the reasons for his refusal of each and all on the first list. After the candidate is appointed, he serves for six months on probation, at the end of which period he is finally accepted or rejected.⁴⁷

Despite these restrictions on the discretion of the heads of the divisions at the Institute, they have been rather successful in securing adequate scientists, as well as men and women who are congenial with the rest of the staff. Although not a serious hindrance, nevertheless the field of selection is not quite as broad for this class of personnel as it is for the commissioned officers; and this can be said, perhaps, to constitute somewhat of a disadvantage.

There is at the Institute one type of scientific personnel which, because it throws light on the entire personnel system, deserves special mention. Throughout the fiscal year 1934, there were serving at the Institute, five persons under the jurisdiction of the Civil Service Commission, entitled "special experts". The appointment of this type constitutes an exception to the general rules of the Commission. Because of the peculiar and rare nature of their work, it is impossible to secure them even through the regular unassembled examinations of the Commission. Therefore, the Director of the Institution recommends these men to the Commission as being peculiarly qualified in their respective lines of scientific investigation; and, providing they meet certain routine requirements such as the physical examination, they are accepted without further tests or inquiries.⁴⁸ We have, then, one more example of the unique position of the Institute in the Public Health Service, and a further illustration of the flexibility of regulations when the exigencies of the work at the laboratory require it.

47. The information contained in this paragraph, Mr. Foltz supplied to the author.

48. Mr. Foltz supplied the author with this information.

Scientific personnel under the Commission "may be promoted within the grade or to the next higher grade according to the needs of the service after passing a satisfactory examination". It consists of three parts: (1) physical, (2) mental, (3) service record and general fitness; the second is "chiefly in writing on the subjects connected with their official duties", according to the Regulations of the Public Health Service.⁴⁹ Nevertheless, it has been found at the Institute that written examinations are rarely necessary for promotion, so that again we note the exceptional position of the Institute in the Health Service, as a whole.

The compensation of the professional scientific personnel consists "of (1) pay, and (2) additional allowances for travel", and the pay is fixed "at rates approved by the Secretary of the Treasury, in conformity with civil service requirements and classification laws".⁵⁰ Below is given the *approximate* maximum and minimum pay of each of the seven grades:⁵¹

<i>Rank</i>	<i>Minimum</i>	<i>Maximum</i>
Junior	\$2,200	\$2,500
Assistant	\$2,600	\$2,700
Associate	\$3,200	\$3,500
Full	\$4,000	\$4,200
Senior	\$4,600	\$5,400
Principal	\$6,000	\$6,400
Chief	\$7,200	\$7,200

Since the duties of "professional scientific personnel . . . insofar as practicable . . . are the same as are required of commissioned officers",⁵² this class of personnel presents but few problems distinct from those of the commissioned personnel, and needs no further discussion.⁵³

49. Cited, *supra*, note 9, p. 48, at 25.

50. *Id.*, at 35.

51. Monthly reductions are made from these sums to provide for compensation after retirement. There is but one "chief" or person in the seventh grade at the Institute—Professor Hudson, Chief of the Division of Chemistry—appointed under the Act of July 1, 1902.

52. *Id.*, at 50.

53. One difficulty with this class of personnel is the fact that withdrawals are more frequent, largely because there is no provision for retirement pay. This has been partly corrected by the Act of April 30, 1930. See *supra*, p. 47.

PART VI: *ESPRIT DE CORPS* AT THE INSTITUTE

ONLY if the reader could spend a few weeks at the National Institute of Health could he appreciate the truly remarkable spirit which pervades the laboratory. He would notice the complete absence of red tape, for the Institute has no rules other than those necessary for the safety and health of its employees. He would notice no clusters of workers standing in the halls, engaging in petty gossip or expressing any antagonisms for any of their associates. For there is no gossip, and there are no antagonisms. All the members of the staff are not intimate, but all are cordial. If he were to wander into one of the laboratory rooms he might find the men concentrating so intensely that he would be unnoticed. On the other hand, he might find a philosophical discussion in progress between two doctors. Soon some of their associates might join them, and a kind of seminar would develop. For scientific investigation can not be regulated by the clock. If he were to visit the laboratory on Sundays or early in the morning or even late at night, he would doubtless find a few men at work.⁵⁴

If he were to ask one of the doctors why he had not left the Institute to accept a position with a higher salary at some private research center or at some biologics manufacturer's laboratory (for he could be sure that he had been asked) the doctor would probably mutter something about independence and absence of interference, and, if he were particularly coherent, he would probably reply, as did one doctor: "Well, you know, after you've worked here for years, you develop a feeling of loyalty for the place; it can't be expressed in words—you just feel it".

This feeling at the Institute did not arise spontaneously. It is largely due to the character and personality of the present director. Charles Warren once said that in the last analysis "democracy simply amounts to a willingness to be interested in the other fellow's point of view".⁵⁵ If this be true, there are few more genuine democrats than George McCoy. He recog-

54. In general, every employee must be at the Institute from nine until four-thirty, but most of the scientific personnel are also quite often present at odd hours in addition to their regular time. Dr. McCoy tells the story that once he couldn't sleep and went down to the laboratory before sunrise. Upon entering he found Dr. Francis hard at work.

55. Address to the Harvard Club of Washington, December 29, 1934.

nizes that all men are not alike and that "the differences of men and actions . . . do not admit of any universal and simple rule".⁵⁶ Besides being an intense individualist himself, he is aware that his fellow-scientists also cherish their independence. The result is that once Dr. McCoy is convinced of a man's ability, there is no supervision on his part. Each scientist is allowed to pursue his own course so long as he conforms to the statutory regulations of the Service. For it is well-known that almost all scientists desire to be left alone to pursue their ideas and "hunches". Interference is resented. Therefore, Dr. McCoy is also careful to protect his associates from outside interference as well.⁵⁷ Thus it is that the Director has been able to build up such a remarkable spirit of loyalty and comradeship among all workers at the laboratory—scientific and non-scientific.

For these reasons, when an emergency arises, such as the psittacosis outbreak, among the workers (recounted at the beginning of this chapter), there are no rivalries or jealousies to flare up. The staff proceeds with its work quietly and harmoniously. And the unseen bonds of loyalty hold the men and women together, no matter how severe the strain. Such is the power of Dr. McCoy's major premise of supervision; such is the power of a genuine governor who governs least.

56. PLATO, STATESMAN. (Jowett translation). The entire passage is quoted at the beginning of this study.

57. The final and next chapter deals at some length with the question of pressure on the Institute; it probably can be said that it is the comparative absence of it which distinguishes this Laboratory from private research institutes.

CHAPTER IV.

CONCLUSIONS

PART I: INTRODUCTORY

WE have surveyed the history, organization, jurisdiction, and system of personnel at the National Institute of Health. Our examination of the system of administration at the Institute is now complete, and we turn to a consideration of three questions. First, has the Institute been successful in carrying out its purpose? Second, if so, why has it been successful? Finally, do these reasons point to any lessons for administration, generally?

PART II

REPUTATION, PUBLICATIONS, AND ACHIEVEMENTS OF THE INSTITUTE

IN determining the degree of success which the Institute has enjoyed, our only criterion must necessarily be that of scientific achievement in medical problems, since its major purpose is research into the cause, cure, and prevention of disease affecting human beings. Although the quantitative measure of accomplishment in this field is extremely difficult, if not impossible, some indication of the Institute's success may be gained from its reputation, its publications, and from a listing of the more important discoveries which it has made.

In the hearings before the Senate subcommittee which reported the bill to establish the National Institute¹ are contained numerous letters from prominent medical scientists praising the work of the Hygienic Laboratory. Dr. Reid Hunt, one of the world's outstanding pharmacologists, said that it "has the reputation of being an extraordinarily successful and useful institution".² Dr. Charles H. Herty of the Chemical Foundation said that the work of the Laboratory was "wonderful".³ Dr. Arthur T. McCormack, State Health Officer of Kentucky quoted no less a person than General (Doctor) Gorgas as having said,

1. See *Hearings*, cited, *supra*, note 41, p. 24.

2. *Id.*, at 22.

3. *Id.*, at 73.

"I would always preserve that splendid little building" (*i.e.*, the Laboratory), and he emphasized further "'how much had been accomplished'" there.⁴ Dr. George E. Vincent, President of the Rockefeller Foundation, said in a letter to Senator Ransdell that the "Laboratory . . . has done excellent work".⁵ Dr. Ludvig Hektoen, "the dean of American physicians", also stressed the fine character of the work at the laboratory.⁶ Dr. Haven Emerson noted the excellence of the work, and urged an expansion of its activities.⁷ These are but samples of the virtually unanimous approval and praise of the scientific achievements of the Institute.

An examination of the publications of the laboratory strongly confirms these opinions. The official publications are known as "Bulletins of the National Institute of Health",⁸ and a special resolution of Congress in 1905 authorized their publication.⁹ To date, 162 of these bulletins have been published.¹⁰ In addition, a good part of the results of investigations at the laboratory are published in the "Public Health Bulletins", and preliminary results are published at frequent intervals in the weekly "Public Health Reports". Furthermore, the scientists at the Institute occasionally resort to private periodicals for the publication of their work. If the reader will but turn to a few of the "Bulletins", alone, he will soon realize the remarkably high quality of the scientific work at the Institute.

Mention has already been made (page 55) of Dr. Goldberger's work in discovering the exact cause of pellagra and the nature of the diet necessary for its prevention. All scientists agree that Dr. Francis' work on tularaemia marks him as the world's outstanding authority on the disease.¹¹ Dr. Stiles' work in zoological classification is internationally famous.¹² Dr. Alice

4. *Id.*, at 67.

5. *Id.*, at 78.

6. *Id.*, 80-81.

7. *Id.*, 92-93.

8. Formerly, "Bulletins of the Hygienic Laboratory".

9. See Res. No. 21, February 24, 1905, 33 STAT. 1283.

10. Unfortunately, the various so-called economy measures of recent Congresses have substantially limited the number of these valuable bulletins, as well as other publications of the Service.

11. This is demonstrated by the fact that he has been asked to write up the subject in the German handbook of bacteriology to be published shortly—a most unusual honor.

12. See his various publications in "Bulletins of the Hygienic Laboratory."

Evans' discoveries in regard to undulant fever and its relationship with the contagious abortion of cattle are monumental,¹³ as is Dr. Dyer's work on typhus fever. As an outcome of the "investigation of the prevalence and distribution of hookworm disease in the United States", "the broad belt of our Southern States took steps toward its eradication, and these measures have borne results of the most remarkable value".¹⁴ And "development of facts connected with the phenomenon of anaphylaxis . . . laid the foundation for much of the knowledge concerning sensitization diseases".¹⁵ Dr. Armstrong's work on vaccination problems is also most noteworthy, as is the work of members of the Divisions of Pharmacology and Chemistry in discovering the cause of so-called Jamaica Ginger Paralysis. Dr. Mansfield Clark's work on hydrogen ion concentration is basic, while Dr. McCoy's work on leprosy has made him one of the outstanding authorities on the subject. When it is realized that these are but a few of the accomplishments of the men and women at the Institute, there can be no doubt of the high caliber of the work.

PART III: REASONS FOR THE INSTITUTE'S SUCCESS

WE have stressed throughout this study that in an institution dedicated to scientific research, accomplishment depends, in the last analysis, upon the quality of that institution's personnel. Three prerequisites are here involved if the purposes of the Institute are to be fulfilled: first, a competent staff must be secured; second, it must be maintained in a proper environment; and finally, it must be held to its original purpose.

In the last chapter we discussed the system of recruitment, promotion, and compensation of the scientific personnel at the Institute. We noted that, in the case of the commissioned officers, a double test was set up to secure the officer's ability; that, first, the candidate had to give evidence of satisfactory education in his profession and of some practical experience; and, second, that he possessed talent for research, to be shown either during actual work in the field services, or during his course in laboratory technique during the elementary training period within the

13. Foltz, *National Institute of Health*, (1936) 5 AMERICAN SCHOLAR 495, 498.

14. *Ibid.*

15. *Ibid.*

confines of the Institute. We noted, further, that the regulations of the Public Health Service and the laboratory's statutory authority were sufficiently flexible to permit the National Institute of Health to occupy that exceptional position in the government service which its purpose necessitates. Finally, we emphasized the judgment of the Director and his immediate assistants in securing capable scientists.

Once a competent staff of research workers has been secured, the Institute is immediately presented with the problem of how to maintain its staff in a proper environment. "Scientific workers are sensitive flowers and do their best in cloistered seclusion".¹⁶ They must not be subjected to interference from pressure groups outside the Service, from officials within the Service, or from fellow staff members within the Institute itself. It is because of the absence of pressure from the last two sources that the Institute stands in a particularly favorable position when compared with the private institute for research. Because the directors of privately operated laboratories feel that it is up to them to produce results, all too frequently they exert pressure upon the members of their staff to publish continually—often before the worker has sufficiently checked his results; and too often without sufficient basis in fact to warrant publication.¹⁷ Although this difficulty may not be inherent in the private institute, its existence is very noticeable. Perhaps it is due to the necessity of relying on private individuals for funds—individuals who measure the quality of an institute's work by the amount of favorable newspaper publicity it receives. This factor—the ignorance of the lay benefactor—has the further result of making the tenure of the worker more insecure than at the Institute. He works feverishly in an effort to publish and then publish some more in an unhealthy atmosphere of crass competition with his fellow scientists, so that he may not be guilty of committing the unpardonable crime of not producing results—for the newspapers.¹⁸

16. Letter from Dr. Milton J. Rosenau to Senator Ransdell. *Hearings*, cited, *supra*, note 41, p. 24, at 89.

17. For example, the director of one such institution of great prominence announces almost every year the discovery of a cure for infantile paralysis.

18. Cf. the author's article, *Publish or Perish*, in *HARVARD ADVOCATE*, May, 1935.

This desire (perhaps, necessity) of the private laboratories to secure notoriety has another unfortunate result in that it produces a tendency on the part of the director and his assistants to maintain a "front". Subject at all times to visits from benefactors and the general public, the directors of the private research laboratories must be ready at a minute's notice to show such people the gleaming marble halls, the latest piece of apparatus, and so on. This often leads to difficulties. For example, it is a well-known fact that a good many scientists are most untidy about their laboratory rooms. Although absolutely clean in their bacteriological habits, they are inclined to allow their rooms to become littered with odds and ends of laboratory equipment. And they dislike to be bothered with janitors and cleaners. Nevertheless, all too often in the private institution, the director insists upon absolute neatness, so that the layman may not get the impression of slovenly and ill-kept rooms.¹⁹

Altogether different is the situation at the National Institute of Health. No one notices or cares about such matters, and so long as the building is kept bacteriologically clean and the rules regarding the animal cages are observed, no extraordinary attempts are made to preserve tidiness. The new little administration building,²⁰ housing the Director's and the Executive Assistant's offices, and the library, is kept in immaculate order. This is fortunate, for the Executive Assistant (who conducts all visitors' tours excepting visiting scientists) can concentrate his guests' attentions on this quite attractive building. The inquisitive Congressman or constituent who wants to know where and how his money is being spent is first shown a handsome, tidy, well-decorated little building, and then is hurriedly shown the laboratories proper. The visitors probably soon become bored with them, anyway.

But the remarkable fact is that there are not many visitors at the laboratory. For the National Institute of Health is not very well known among the laymen or even among practicing physicians. It has never sought publicity, and, therefore, is not subject to meddling visitors. Apparently publicity has not been necessary for the success of the Institute. This raises the ques-

19. Dr. Francis told the author that the director of a prominent medical research institute, actually follows one of the members of his staff around, picking up the burned match sticks as he drops them.

20. See p. 25, *supra*, for a description of this building.

tion whether or not it is necessary for the private institution for medical research. This inclines us once more to the conclusion that the character of the director may constitute the determining factor in this question. Dr. McCoy has a healthy loathing of publicity and of scientists who desire publicity. At the same time, he protects his associates insofar as possible from annoyances. If the feelings of any important public persons have to be soothed—and this is seldom—Dr. McCoy does the job. More often, however, he is able to transfer the query or complaint to the office of the Surgeon General, who is specifically trained to deal with such problems. But few instances arise where this becomes necessary. One of the very few specific instances arose almost two decades ago in connection with a laboratory publication²¹ which dealt with the dangers of too much white bread in the diet. After some bickering on the part of the manufacturers who thought their sales would be affected, Dr. McCoy referred the matter to the Surgeon General. It was agreed that the publication would be altered so that it would be quite clear that white bread in itself was not harmful, but only became so when taken in large quantities. Thus, in effect, a compromise was effected between the Institute and the manufacturers without any great amount of friction.²²

It is true, of course, that trouble occasionally arises in connection with the administration of the virus law. So far as the author has been able to determine, however, it has never interfered with the work at the laboratory. It is possible, as we have indicated in a previous chapter, that the administration of this law is less effective because of the ever-present possibility of such pressure. But most of the difficulty that does occasionally arise proceeds from smaller, less ethical vaccine manufacturers, and, as a result, the more ethical firms are quick to support Dr. McCoy in any decision he may make.

We are thus lead to the conclusion that at least as much emphasis must be placed on the character and personality of the director as upon the inherent differences between the private and public research institute. There is a distinction, however, between the two types. It is because of this distinction that

21. See Voeghtlin, *et al.*, *Bread as a Food* (1916), 31 PUBLIC HEALTH REPORTS, (No. 15).

22. This incident was related to the author by Mr. Foltz.

we look with decided disfavor on the provisions in the Congressional Act of 1930 creating the Institute, etc., insofar as it provides for the acceptance of private funds for research.²³ So long as Dr. McCoy remains Director we may be assured that he will not indulge in or permit any advertising of the Institute in order to secure additional funds. If, on the other hand, a director that succeeds him desires rapid expansion and has a flare for publicity, great harm may be done to the Institute and its work. In this possibility together with the provisions cited in the 1930 Act there lies potential dynamite; and it illustrates the importance of both factors—quality of the director and nature of the source of operating funds—in determining the success of an institute dedicated to medical research.

* * *

We have previously quoted Dr. Rosenau to the effect that "Scientific workers . . . do their best in cloistered seclusion". But this is not to be taken too strictly. For one of the great advantages of the Institute—an advantage arising from its public character—is that it is constantly presented with immediate medical problems from every section of the country, and even from foreign lands. State and local health departments continually call for assistance from the Public Health Service in solving immediate and perplexing problems of human disease.²⁴ This often results in the dispatch of a commissioned officer from the Institute to the scene of the trouble.²⁵ As a result, the staff is constantly presented with new and important problems to which they can devote their energies. This prevents the growth of that grave danger to the institution for research—decay from within. It means that the workers in the laboratory will not be permitted to fritter away their time on unimportant projects, but rather will be forced to exert their energies on pressing and urgent problems of medical science.

23. See Part III, Chapter I, *supra*.

24. This fact has much significance for the federal problem. See *White, Public Administration* (1926) 80-81, and *supra*, p. 12. The authority for the activities of the Public Health Service in eradicating epidemics local in character is derived from the principle of constitutional law that intra-state matters may so affect interstate commerce as to authorize federal regulation. Thus, this sort of federal work might be described as "The Shreveport Case in Public Health".

25. Recent examples are the St. Louis epidemic of so-labeled, lethargic encephalitis, in 1933, and the epidemic of amoebic dysentery in Chicago in the same year. See Part VI, Chapter II, *supra*.

In this regard, they have in some degree an advantage over the man in the private medical center, who, because of his unofficial position, has more difficulty in getting first-hand access to the disease. But more than this, the officer at the National Institute of Health is compelled to board a train or airplane and visit the scene of trouble, while the worker in the private institution may permit himself to be inoculated against new ideas by refusing to confront at first hand the pressing medical problems of the moment.

In a sense, however, it might be said that the advantages of this favorable pressure are balanced by the danger more inherent in publicly operated institutions that the worker at the Institute will become involved in political quarrels or professional jealousies. It is here that Director McCoy and his associates have shown a quality of forbearance rarely found in human beings. No better illustration of it could be found than in the administration of the Virus Law. Here is potential dynamite for administrators—dynamite that may at any moment explode and violently blow the Institute into political squabbles with their concomitant unfortunate publicity, and may, perhaps ultimately result in placing restrictions upon the jurisdiction of the laboratory, due to the activities of pressure groups with political influence. It is for these reasons that the Institute's administration of this law merits special praise. For, rather than producing outside interference, it has proven a further factor in keeping the Institute alive, and impelling it toward research problems of immediate significance and importance. Further than this, the Virus Law has proved effective as a lever which the Institute and the Public Health Service could use in Congress for enlarging the scope of the laboratory's activities. Since 1917, when Congress commenced to appropriate funds specifically for the administration of this law (*supra*, page 22), the work has steadily grown. This, therefore, has focused Congressional attention on the Institute, and has provided Dr. McCoy and his associates with a concrete reason for asking the Congressman, who, normally would have little interest in such work, for increased appropriations.

Of course, as we observed earlier (Chapter II), the Institute's administration of the law has not been as effective as it might have been. Products have been licensed which are of no thera-

peutic value, and the public interests might have been better served by refusing such licenses, or, better still, by publicising the fact that a license from the government was not a guarantee of therapeutic value or prophylactic efficiency. It is perfectly clear, however, that the Institute would not have served the public to such a high degree, had it attempted to enforce too rigidly (and possibly without statutory authority) an Act so potentially dangerous. For such enforcement might well have resulted in the application of sufficient pressure from the large manufacturers to have curtailed and interfered with other research projects at the laboratory. Speculative though the potentialities of the pressure are, it does constitute an ever present danger in administration.

Thus the administration of the Virus Law, which most readily could have resulted in external interference with the work at the Institute, and a concurrent departure from its original purpose, has actually produced an enlargement of the benefits of the work by focusing favorable Congressional attention upon the Institute, and by raising important medical problems for laboratory study. The Institute has—although publicly operated—steered a safe course through the shoals of pressure groups, and has kept to its original aim, continuing at the same time to attract competent workers, and continuing to keep them in a proper environment.

PART IV: CONCLUSION

DOCTOR HERTY: “. . . We felt that such an institution [for chemomedical research] should not be under Government auspices . . . [But now] as the result of what I have learned of the wonderful work done by the Hygienic Laboratory of this government, and the beautiful results obtained with the limited facilities at its disposal, I have changed my mind completely, and I feel that the Government should lead in this matter”.²⁶

When it is remembered that this statement came from the official advisor of the Chemical Foundation, who himself pointed out at the hearings on the bill to create the Institute that in 1922 he was of the opinion that “‘government laboratories . . . exist for the enforcement of laws or for other utilitarian purposes rather than for the prosecution of fundamental re-

26. *Hearings, op. cit. supra*, note 41, p. 24, at 73.

search' ",²⁷ we can fairly infer that business interests in this country are changing their attitude toward governmental activity such as the Institute carries on. The truth of the matter is that its work has been eminently successful and has ultimately resulted in enormous savings to business in general, and to the biologics and chemical industries, in particular.

It is thus apparent that there is not a fundamental and necessary incompatibility between a highly individualistic profession and its furtherance through governmental activity. We must be careful, however, not to draw too general conclusions from the success of the Institute. We cannot safely conclude that a successfully operated state laboratory for medical research points to the probable success of, say, government ownership of public utilities.

We can, however, observe a few of the administrative factors making for the success of the National Institute of Health, and accept them for whatever value they may have for students of administration. We have seen through our study of the history of the Institute that it was permitted to grow in a healthy atmosphere, and fast developed a high degree of administrative autonomy. Following Dr. Rosenau's regime in which he gave the laboratory an admirable internal organization and gathered together an excellent staff, Dr. McCoy continued to enlarge the size and scope of the Institute.

Because state governments constantly call on the Institute to help them in solving problems of disease, the laboratory was able to guard against stagnation, and was forced to deal with new medical research problems as they arose. At the same time it was allowed to work, free of deleterious environmental influences. Able to stand on its own feet, at the same time, the laboratory has constantly gone into the field to encounter new problems of disease.

Because of the constantly increasing number of manufacturers seeking licenses for their viruses, serums, toxins, and analogous products in accordance with the Act of 1902, the Institute soon faced a difficult problem of administration. Although a more stringent enforcement of the law would, perhaps, have better served the public interests, Dr. McCoy with a strongly individualistic philosophy, would not refuse a license for a product, so long as a portion of the medical profession even though a

27. *Ibid.*

minority were of opinion that the product possessed therapeutic value. The laboratory, therefore, has confined itself to insuring a product's purity and—where tests are possible—its potency. Nevertheless, where a product is clearly a fraud and certainly of no value, a license has been refused. This wide discretion exercised by the Institute, we have seen, may in later years lead to dangerous complications. A government entirely of men requires above all else, *good men*. It is better that "a man should rule" than the laws, says Plato, but *only* supposing him to have "wisdom and royal power".²⁸

Nevertheless, because of the Institute's excellent handling of the personnel problem, there is every reasonable expectation that it will continue to attract competent scientists. Because the organization of the Public Health Service permits the Institute to select from an already selected field of over 350 doctors those fifteen or twenty men most suited to research—men whose abilities have already been tested in the field or while under observation in the training course within the Institute—the Service is able to provide an excellent nucleus of research workers. This nucleus has been supplemented with men and women entering the laboratory under the provisions of the Civil Service Act. In addition, because of broad and wise statutory provisions, the Institute is able to appoint a few men especially talented, without examination and without adhering to strict formal requirements regarding past record and length of service. Thus the Institute has secured an excellent staff by combining all the advantages of a formal government bureau together with the more flexible personnel system of private institutions. Finally, because of the tolerant, but firm leadership of Dr. McCoy, the Institute has maintained its staff in a protected yet fertile environment.

Thus has science flourished in a bureaucracy. In the last analysis, whether the Institute will continue to thrive will depend upon the continued maintenance of its power to attract capable scientists—scientists who can be nurtured in a bureaucracy that is able to combine adequate safeguards against disruptive influences both from within and without, together with an elasticity that will allow the National Institute of Health to "show a strength of art . . . superior to the law".²⁹

28. PLATO, STATESMAN. See p. 3, *supra*, where the passage is given in full.

29. *Ibid.*

APPENDICES

APPENDIX A.

STATUTES CONCERNING THE ORGANIZATION, AUTHORITY, JURISDICTION, AND PERSONNEL OF THE NATIONAL INSTITUTE OF HEALTH

An Act to regulate appointments in the Marine-Hospital Service of the United States:

THAT medical officers of the Marine-Hospital Service of the United States shall hereafter be appointed by the President, by and with the advice and consent of the Senate; and no person shall be so appointed until after passing a satisfactory examination in the several branches of medicine, surgery, and hygiene before a board of medical officers of the said service. Said examination shall be conducted according to rules prepared by the Supervising Surgeon General and approved by the Secretary of the Treasury and the President.

SEC. 2. That original appointments in the service shall only be made to the rank of assistant surgeon; and no officer shall be promoted to the rank of passed assistant surgeon until after four years' service and a second examination as aforesaid; and no passed assistant surgeon shall be promoted to be surgeon until after due examination: Provided, That nothing in this Act shall be so construed as to affect the rank or promotion of any officer originally appointed before the adoption of the regulations of 1879; and the President is authorized to nominate for confirmation the officers in the service on the date of the passage of this Act. (Act Jan. 4, 1889, c. 19, 25 STAT. 639).

* * *

**** For building for laboratory, Marine-Hospital Service: For the erection of the necessary buildings and quarters for a laboratory for the investigation of infections and contagious diseases, and matters pertaining to the public health, under the direction of the Supervising Surgeon General, \$35,000; and the Secretary of the Navy is authorized to transfer to the Secretary of the Treasury, for use as a site for said laboratory, five acres of the reservation now occupied by the Naval Museum of Hygiene. (Sundry civil appropriation act, March 3, 1901, c. 853, 31 STAT. 1137).

* * *

An Act to increase the efficiency and change the name of the United States Marine-Hospital Service:

[SECS. 1-5 are omitted.]

SEC. 5. That there shall be an advisory board for the hygienic laboratory provided by the Act of Congress approved March 3, 1901, for consultation with the Surgeon General of the Public Health and Marine-Hospital Service relative to the investigations to be inaugurated, and the methods of conducting the same, in said laboratory. Said board shall consist of three competent experts, to be detailed from the Army, the Navy, and the Bureau of Animal Industry by the Surgeon General of the Army, the Surgeon General of the Navy, and the Secretary of Agriculture, respectively, which experts, with the director of the said laboratory, shall be ex-officio members of the board and serve without additional compensation. Five other members of the said board shall be appointed by the Surgeon General of the Public Health and Marine-Hospital Service, with the approval of the Secretary of the Treasury, who shall be skilled in laboratory work in its relation to the public health, and not in the regular employment of the Government. The said five members shall each receive compensation of \$10 per diem while serving in conference, as aforesaid, together with allowance for actual and necessary traveling expenses and hotel ex-

penses while in conference. Said conference is not to exceed 10 days in any one fiscal year. The term of service of the five members of said board, not in the regular employment of the Government, first appointed shall be so arranged that one of said members shall retire each year, the subsequent appointments to be for a period of five years. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant.

SEC. 6. That there shall be appointed by the Surgeon General, with the approval of the Secretary of the Treasury, whenever, in the opinion of the Surgeon General, commissioned medical officers of the Public Health and Marine-Hospital Service are not available for this duty by detail, competent persons to take charge of the divisions, respectively, of chemistry, zoology, and pharmacology of the hygienic laboratory, who shall each receive such pay as shall be fixed by the Surgeon General, with the approval of the Secretary of the Treasury. The director of the said laboratory shall be an officer detailed from the corps of commissioned medical officers of the Public Health and Marine-Hospital Service, as now provided by regulations for said detail from the Marine-Hospital Service and while thus serving shall have the pay and emoluments of a surgeon: Provided, That all commissioned officers of the Public Health and Marine-Hospital Service not below the grade of passed assistant surgeon shall be eligible to assignment to duty in charge of the said divisions of the hygienic laboratory, and while serving in such capacity shall be entitled to the pay and emoluments of their rank. (Act July 1, 1902, c. 1370, 32 STAT. 712).

* * *

An Act to regulate the sale of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes:

THAT from and after six months after the promulgation of the regulations authorized by section 4 of this Act no person shall sell, barter, or exchange, or offer for sale, barter, or exchange in the District of Columbia, or send, carry, or bring for sale, barter, or exchange from any State, Territory, or the District of Columbia into any State, Territory, or the District of Columbia, or from any foreign country into the United States, or from the United States into any foreign country, any virus, therapeutic serum, toxin, antitoxin, or analogous product applicable to the prevention and cure of diseases of man, unless (a) such virus, serum, toxin, antitoxin, or product has been propagated and prepared at an establishment holding an unsuspended and unrevoked license, issued by the Secretary of the Treasury as hereinafter authorized, to propagate and prepare such virus, serum, toxin, antitoxin, or product for sale in the District of Columbia, or for sending, bringing, or carrying from place to place aforesaid; nor (b) unless each package of such virus, serum, toxin, antitoxin, or product is plainly marked with the proper name of the article contained therein, the name, address, and license number of the manufacturer, and the date beyond which the contents can not be expected beyond reasonable doubt to yield their specific results: Provided, That the suspension or revocation of any license shall not prevent the sale, barter, or exchange of any virus, serum, toxin, antitoxin, or product aforesaid which has been sold and delivered by the licentiate prior to such suspension or revocation, unless the owner or custodian of such virus, serum, toxin, antitoxin, or product aforesaid has been notified by the Secretary of the Treasury not to sell, barter, or exchange the same.

SEC. 2. That no person shall falsely label or mark any package or container of any virus, serum, toxin, antitoxin, or product aforesaid; nor alter any label or mark on any package or container of any virus, serum, toxin, antitoxin, or product aforesaid so as to falsify such label or mark.

SEC. 3. That any officer, agent, or employee of the Treasury Department, duly detailed by the Secretary of the Treasury for that purpose, may

during all reasonable hours enter and inspect any establishment for the propagation and preparation of any virus, serum, toxin, antitoxin, or product aforesaid for sale, barter, or exchange in the District of Columbia, or to be sent, carried, or brought from any State, Territory, or the District of Columbia into any other State or Territory or the District of Columbia, or from the United States into any foreign country, or from any foreign country into the United States.

SEC. 4. That the Surgeon General of the Army, the Surgeon General of the Navy, and the Supervising Surgeon General of the Marine-Hospital Service be and they are hereby constituted a board with authority, subject to the approval of the Secretary of the Treasury, to promulgate from time to time such rules as may be necessary in the judgment of said board to govern the issue, suspension, and revocation of licenses for the maintenance of establishments for the propagation and preparation of viruses, serums, toxins, antitoxins, and analogous products, applicable to the prevention and cure of diseases of man, intended for sale in the District of Columbia, or to be sent, carried, or brought for sale from any State, Territory, or the District of Columbia into any other State, Territory, or the District of Columbia, or from the United States into any foreign country, or from any foreign country into the United States: Provided, That all licenses issued for the maintenance of establishments for the propagation and preparation in any foreign country of any virus, serum, toxin, antitoxin, or product aforesaid for sale, barter, or exchange in the United States, shall be issued upon condition that the licentiates will permit the inspection of the establishments where said articles are propagated and prepared, in accordance with section 3 of this Act.

SEC. 5. That the Secretary of the Treasury be, and he is hereby, authorized and directed to enforce the provisions of this Act and of such rules and regulations as may be made by authority thereof; to issue, suspend, and revoke licenses for the maintenance of establishments aforesaid, and to detail for the discharge of such duties such officers, agents, and employees of the Treasury Department as may in his judgment be necessary.

SEC. 6. That no person shall interfere with any officer, agent, or employee of the Treasury Department in the performance of any duty imposed upon him by this act or by regulations made by authority thereof.

SEC. 7. That any person who shall violate, or aid or abet in violating, any of the provisions of this Act shall be punished by a fine not exceeding \$500 or by imprisonment not exceeding one year, or by both such fine and imprisonment, in the discretion of the court.

SEC. 8. That all Acts and parts of Acts inconsistent with the provisions of this Act be, and the same are hereby, repealed. (Act July 1, 1902, c. 1378, 32 STAT. 728).

* * *

Joint Resolution providing for the publication of the annual reports and bulletins of the Hygienic Laboratory and of the Yellow-Fever Institute of the Public Health and Marine-Hospital Service:

THAT there shall be printed each year the bulletins of the hygienic laboratory, not exceeding 10 in number in any one year, and of the yellow-fever institute of the Public Health and Marine-Hospital Service of the United States, not exceeding 5 in number in any one year, in such editions, not exceeding 5,000 copies in any one year, as the interests of the Government and the public may require, subject to the discretion of the Secretary of the Treasury. (Res. Feb. 24, 1905, No. 21, 33 STAT. 1283).

* * *

An Act authorizing the construction of a building for the Public Health Service in the city of Washington, District of Columbia:

THAT the Secretary of the Treasury be, and he is hereby, authorized and directed to contract for the construction of an additional building for

laboratory purposes and research work and for enlarging and remodeling the present animal house connected with the Hygienic Laboratory, Public Health Service, Washington, District of Columbia, at a limit of cost of \$250,000.

In carrying the foregoing authorization for additional buildings to the Hygienic Laboratory into effect, the Secretary of the Treasury may enter into contracts or purchase materials in the open market, or otherwise, and employ laborers and mechanics for executing the work as in his judgment may best meet the public exigencies, within the limits of the authorization herein made. (Act Oct. 30, 1918, c. 198, 40 STAT. 1018).

* * *

An Act to provide for the coordination of the public-health activities of the Government, and for other purposes:

THAT upon the request of the head of an executive department or an independent establishment which is carrying on a public-health activity the Secretary of the Treasury is authorized to detail officers or employees of the Public Health Service to such department or independent establishment in order to cooperate in such work. When officers or employees are so detailed their salaries and allowances shall be paid by the Public Health Service from applicable appropriations.

SEC. 2. (a) The Surgeon General of the Public Health Service is authorized to detail personnel of the Public Health Service to educational and research institutions for special studies of scientific problems relating to public health and for the dissemination of information relating to public health, and to extend the facilities of the Public Health Service to health officials and scientists engaged in special study.

(b) The Secretary of the Treasury is authorized to establish such additional divisions in the Hygienic Laboratory in the District of Columbia as he deems necessary to provide agencies for the solution of public-health problems, and facilities therein for the coordination of research by public-health officials and other scientists and for demonstrations of sanitary methods and appliances.

[SEC. 3 is omitted.]

SEC. 4. Hereafter, under such regulations as the President may prescribe, medical, dental, sanitary engineer, and pharmacist officers selected for general service in the regular corps of the Public Health Service and subject to change of station shall be appointed by the President, by and with the advice and consent of the Senate; original appointments shall be made only in the grade corresponding to that of assistant surgeon or passed assistant surgeon, except as provided under sections 5 and 6 of this Act.

SEC. 5. The President is authorized to appoint, by and with the advice and consent of the Senate, to grades in the regular corps not above that of medical director, under such regulations as he may prescribe, not to exceed a total of fifty-five medical, dental, sanitary engineer, and pharmacist officers in the Public Health Service upon the date of passage of this Act (except commissioned officers of the regular corps). Not more than four such appointments shall be in a grade above that of surgeon. In making such appointments due regard shall be had to the salary received by such officer at the time of such appointment. For purposes of pay and pay period, said officers shall be credited only with active service in the Public Health Service and active commissioned service in the Army and Navy.

[SEC. 6 is omitted.]

SEC. 7. Whenever commissioned officers of the Public Health Service are not available for the performance of permanent duties requiring highly specialized training and experience in scientific research, the Secretary of the Treasury shall report that fact to the President with his recommendations, and the President, under the provision of this section, is authorized

to appoint, by and with the advice and consent of the Senate, not to exceed three persons in any one fiscal year to grades in the regular corps of the Public Health Service above that of assistant surgeon, but not to a grade above that of medical director; and for purposes of pay and pay period any person appointed under the provisions of this section shall be considered as having had on the date of appointment service equal to that of the junior officer of the grade to which appointed.

[SEC. 8 is omitted.]

SEC. 9. Hereafter commissioned officers of the regular corps of the Public Health Service, after examination under regulations approved by the President, shall be promoted according to the same length of service and shall receive the same pay and allowances as are now or may hereafter be authorized for officers of corresponding grades of the Medical Corps of the Army, except that —

(a) For purposes of future promotion an officer whose original appointment to the regular corps under the provisions of this Act is in a grade above that of assistant surgeon shall be considered as having had on the date of appointment service equal to that of the junior officer of the grade to which appointed; if the actual service of such officer in the Public Health Service exceeds that of the junior officer of the grade, such actual service not exceeding ten years for a passed assistant surgeon, and fourteen years for a surgeon shall be credited for purposes of future promotion;

(b) Pharmacists shall not be promoted to the grade of passed assistant surgeon until after five years of service in the grade of assistant surgeon and shall not be promoted above the grade of passed assistant surgeon.

(c) When an officer, after examination under regulations approved by the President, is found not qualified for promotion for reasons other than physical disability incurred in line of duty —

(1) If in the grade of assistant surgeon, he shall be separated from the service and paid six months' pay and allowances;

(2) If in the grade of passed assistant surgeon, he shall be separated from the service and paid one year's pay and allowances; and

(3) If in the grade of surgeon or of senior surgeon, he shall be reported as not in line of promotion, or placed on waiting orders and paid at the rate of 2½ per centum for each complete year of active commissioned service in the Public Health Service, but in no case to exceed 60 per centum of his active pay at the time he is placed on waiting orders.

[SEC. 10 is omitted.]

SEC. 11. Hereafter the Secretary of the Treasury shall appoint, in accordance with the civil service laws, all officers and employees, other than commissioned officers, of the Public Health Service, and may make any such appointment effective as of the date on which the officer or employee enters upon duty: Provided, That any regulations which may be prescribed as to the qualifications as to the appointment of medical officers or employees shall give no preference to any school of medicine.

[SEC. 12 is omitted.]

SEC. 13. Hereafter the advisory board for the Hygienic Laboratory shall be known as the National Advisory Health Council, and the Surgeon General of the Public Health Service, with the approval of the Secretary of the Treasury, is authorized to appoint, from representatives of the public-health profession, five additional members of such council. The terms of service, compensation, and allowances of such additional members shall be the same as the other members of such council not in the regular employment of the Government, except that the terms of service of the members first appointed shall be so arranged that the terms of not more than two members shall expire each year. Such council, in addition to its other function, shall advise the Surgeon General of the Public Health Service in respect to public-health activities. (Act April 9, 1930, 46 STAT. 150).

An Act to establish and operate a National Institute of Health, to create a system of fellowships in said institute, and to authorize the Government to accept donations for use in ascertaining the cause, prevention, and cure of disease affecting human beings, and for other purposes:

THAT the Hygienic Laboratory of the Public Health Service shall hereafter be known as the National Institute of Health, and all laws, authorizations, and appropriations pertaining to the Hygienic Laboratory shall hereafter be applicable for the operation and maintenance of the National Institute of Health. The Secretary of the Treasury is authorized to utilize the site now occupied by the Hygienic Laboratory and the land adjacent thereto owned by the Government and available for this purpose, or when funds are available therefor, to acquire sites by purchase, condemnation, or otherwise, in or near the District of Columbia, and to erect thereon and to furnish and equip suitable and adequate buildings for the use of such institute. In the administration and operation of this institute the Surgeon General shall select persons who show unusual aptitude in science. There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$750,000, or so much thereof as may be necessary for construction and equipment of additional buildings at the present Hygienic Laboratory of the Public Health Service, Washington, District of Columbia.

SEC. 2. The Secretary of the Treasury is authorized to accept on behalf of the United States gifts made unconditionally by will or otherwise for study, investigation, and research in the fundamental problems of the diseases of man and matters pertaining thereto, and for the acquisition of grounds or for the erection, equipment, and maintenance of buildings and premises: Provided, That conditional gifts may be accepted if recommended by the Surgeon General and the National Advisory Health Council. Any such gifts shall be held in trusts and shall be invested by the Secretary of the Treasury in securities of the United States, and the principal or income thereof shall be expended by the Surgeon General, with the approval of the Secretary of the Treasury, for the purposes indicated in this Act, subject to the same examination and audit as provided for appropriations made for the Public Health Service by Congress. Donations of \$500,000 or over in aid of research will be acknowledged permanently by the establishment within the institute of suitable memorials to the donors. The Surgeon General, with the approval of the Secretary of the Treasury, is authorized to establish and maintain fellowships in the National Institute of Health, from funds donated for that purpose.

SEC. 3. Individual scientists, other than commissioned officers of the Public Health Service, designated by the Surgeon General to receive fellowships may be appointed for duty in the National Institute of Health established by this Act. During the period of such fellowship these appointees shall hold appointments under regulations promulgated by the Secretary of the Treasury and shall be subject to administrative regulations for the conduct of the Public Health Service. Scientists so selected may likewise be designated for the prosecution of investigations in other localities and institutions in this and other countries during the term of their fellowships.

SEC. 4. The Secretary of the Treasury, upon the recommendation of the Surgeon General, is authorized (1) to designate the titles and fix the compensation of the necessary scientific personnel under regulations approved by the President; (2) in accordance with the civil service laws to appoint, and in accordance with the Classification Act of 1923, and amendments thereto, fix the compensation of such clerical and other assistants; and (3) to make such expenditures (including expenditures for personal services and rent at the seat of government, for books of reference, periodicals, and exhibits, and for printing and binding) as he deems necessary for the proper administration of such institution.

SEC. 5. The facilities of the institute shall from time to time be made available to bona fide health authorities of States, countries, or municipalities for purposes of instruction and investigation.

SEC. 6. That hereafter the Director of the National Institute of Health while so serving shall have the rank and shall receive the pay and allowances of a medical director of the Public Health Service. (Act May 26, 1930, 46 STAT. 379).

* * *

APPENDIX B.

REGULATIONS OF THE UNITED STATES PUBLIC HEALTH SERVICE GOVERNING THE NATIONAL INSTITUTE OF HEALTH

Article XXIII: National Institute of Health.

859. All regulations of the Public Health Service applying to the management of field stations, in so far as applicable, shall be observed in the management of the institute.

860. The Director of the National Institute of Health shall be an officer detailed from the corps of regular commissioned medical officers of the Public Health Service detailed for that duty by the Surgeon General.

861. The assistant director shall be a regular commissioned officer of the Public Health Service detailed for that duty by the Surgeon General.

862. The chiefs of the divisions shall be commissioned officers of the service detailed by the Surgeon General for that purpose, except that when commissioned officers are not available for such duty other competent persons may be appointed by the Secretary upon the recommendation of the Surgeon General, to be chiefs of divisions.

863. The officers of the institute shall consist of the scientific staff and administrative personnel above the grade of clerk.

864. The order of rank or precedence in the personnel of the National Institute of Health shall be as follows:

The director.

Assistant director.

Chiefs of divisions, according to seniority.

Commissioned officers.

Other officers of the scientific staff and research associates.

Administrative personnel above the grade of clerk.

This order of precedence relates only to institute administration, and commissioned officers thus detailed, but when not thus engaged are entitled to the order and precedence in paragraph 6.

865. Officers and others detailed to or appointed for duty in the National Institute of Health shall be under the director, and shall perform such duties as may be assigned them by the director.

866. Commissioned officers of the service and others may, from time to time, be detailed or assigned to the institute by the Surgeon General for giving or receiving special instruction, to conduct research, or to perform other duties of service, and during such time, when serving in the institute, they shall be under the direction of the director, irrespective of rank.

867. Persons holding fellowships shall be known as research associates. They shall be appointed, and their compensation fixed, by the Secretary of the Treasury for such work and term of service as may appear to the public interest.

868. Original manuscripts, data, and other tangible evidence of the work of research associates shall be the property of the United States Government.

869. The Director of the National Institute of Health shall exercise the same authority in its management as officers in charge of other stations and shall report directly to the Surgeon General.

870. During the temporary absence of the Director of the National Institute of Health the next ranking officer, according to paragraph 864, shall be acting director.

871. Purchases shall be made in accordance with the regulations of the Public Health Service by the director of the institute. No expenses shall be incurred by any officer or employee of the institute without the authorization of the director.

872. The hours for duty for officers and employees serving at the National Institute of Health shall be those of the Treasury Department in Washington, but this provision shall not apply to the continuance of work or investigation deemed necessary by the director of the chiefs of divisions beyond such hours.

873. All specimens of whatever nature sent to the institute, or to any officer or employee in the institute, shall become the property of the institute.

874. All specimens which, in the opinion of the director, are no longer needed by the institute shall become the property of the National Museum, or otherwise provided for.

875. The director, under the Surgeon General, shall be responsible for and shall have charge of the personnel, the property, and the work of the institute. He shall issue and enforce such orders for the internal administration of the institute as will promote efficiency.

876. The assistant director shall perform such duties as may be assigned him by the director.

877. The chiefs of the several divisions shall be in charge of the technical work of their divisions. They shall each be responsible for and shall have charge of the personnel, property, and work assigned them by the director.

878. Manuscripts for publication prepared by the personnel of the National Institute of Health shall be submitted through the director to the Surgeon General.

879. All correspondence of an official nature bearing upon the policy, the management, the property, the personnel and the work of the institute shall be conducted by or through the director.

880. It shall be the duty of the director of the institute to recommend to the Surgeon General, from time to time, special researches in the prevention, causation, and cure of disease, matters relating to the public health, and collateral subjects pertaining thereto.

881. It shall be the duty of the Director of the National Institute of Health, before conducting investigations, examinations, or analyses of an extended or important nature, to consult with the Surgeon General relative to such work. It shall be the duty of the chiefs of divisions, before conducting investigations, examinations, or analyses of an extended or important nature, to consult with the director relative to such work.

882. Special investigations, examinations, or analyses not connected with the routine work of the institute shall not be undertaken by anyone connected with the institute and no certificate relating thereto, or to any work in the institute, shall be given, except with the approval of the director.

883. The chiefs of the divisions of the institute shall have charge of their respective divisions and, under the director, shall conduct investigations, analyses, and work relating to researches in the causation, prevention, and cure of disease and matters pertaining to the public health.

884. While so serving the director shall have the rank and shall receive the pay and allowances of a medical director.

885. The chiefs of divisions, other than commissioned officers, especially appointed as provided in paragraph 862 shall be designated as professors

of the respective sciences over which they have supervision; their pay shall be from \$6,000 to \$7,500 per annum as fixed by the Secretary of the Treasury upon recommendation of the Surgeon General.

886. The compensation of other officers and employees shall be fixed by the Secretary of the Treasury upon recommendation of the Surgeon General at annual or monthly rates and according to the extent and importance of their respective duties.

887. All personnel of the National Institute of Health are subject to orders of the Surgeon General, involving travel when required in the public interest. When traveling under such orders they shall be governed by law and regulations relating to travel.

888. At the close of each month the chief of each division shall make a brief report to the Director of the National Institute of Health, and the director shall make general report each month to the Surgeon General, giving a summary of the work performed, results obtained, work in progress, and other facts of importance or interest in connection therewith.

889. The chief of each division shall make an annual report concerning the operations of his division of the institute, giving in detail the character of the work performed, with results obtained, to the director, and the director shall make an annual report to the Surgeon General.

890. The uniform of the director shall be that of a medical director, unless he holds a higher grade. Officers and employees will not be required to wear the uniform except when so ordered by the director. Employees will not be required to provide themselves with uniforms unless so ordered by the Surgeon General.

891. The National Advisory Health Council shall consist of 14 members, three of whom shall be competent experts to be detailed from the Army, Navy, and the Bureau of Animal Industry by the Surgeon General of the Army, the Surgeon General of the Navy, and the Secretary of Agriculture, respectively, which experts, with the director of the institute shall be ex officio members of the council and serve without additional compensation. The 10 other members of the said council shall be appointed by the Secretary of the Treasury upon the recommendation of the Surgeon General from representatives of the public health profession and not in the regular employment of the government.

892. The term of service of the 10 members of said council not in the regular employment of the Government shall be for a period of five years, except that of those first appointed two members shall retire each year: Provided, That when a member has served for a full term of five years he shall not be reappointed within one year.

893. The duties of the National Advisory Health Council shall be to consult with the Surgeon General relative to investigations proposed or being conducted at the National Institute of Health and in addition thereto, shall advise the Surgeon General in respect to public health activities.

894. Conferences of the National Advisory Health Council shall not exceed 10 days in any one fiscal year.

895. The 10 members of the National Advisory Health Council not in the regular employment of the Government shall each receive compensation of \$10 per diem while serving in conference, together with allowance for actual and necessary traveling expenses and hotel expenses while in conference.

APPENDIX C.

NUMBER AND TYPES OF PERSONNEL AT THE INSTITUTE FROM 1909 TO 1936¹

Year	Commissioned	Professors	Other Scientific*	Non-Scientific	Total
1909	9	3	13	28	53
1910	11	2	12	28	53
1911	13	3	12	27	55
1912	12	3	12	29	56
1913	17	3	11	32	63
1914	22	3	11	35	71
1915	14	3	13	34	64
1916	13	3	22	31	69
1917	16	3	23	36	78
1918	13	3	39	37	92
1919	13	3	38	42	96
1920	13	3	37	50	103
1921	10	3	39	75	127
1922	17	3	45	65	130
1923	10	3	52	56	121
1924	11	3	51	48	113
1925	14	3	49	50	116
1926	13	3	47	51	114
1927	15	3	43	53	114
1928	13	3	45	57	118
1929	12	3	51	62	128
1930	12	3	52 ²	63	130
1931	13	1	54 ³	71	141
1932	18	1	55 ³	79	153
1933	20	1	56 ⁴	70	148
1934	19	1	61 ⁴	68	149
1935	19	1	62 ⁵	78	160
1936	18	1	71 ⁵	87	177

*Includes technicians.

¹These figures are not entirely accurate, but are the best available.

²Includes five persons serving on part-time only.

³Includes eleven persons serving on part-time only.

⁴Includes sixteen persons serving on part-time only.

⁵Includes nineteen persons serving on part-time only.

APPENDIX D.
APPROPRIATIONS FOR THE MAINTENANCE OF THE INSTITUTE
FROM 1907 TO 1936¹

Year	Appropriation	Expenditure	Balance
1907	\$15,000	\$8,685.98	\$6,314.02
1908	15,000	9,831.20	5,168.80
1909	15,000	13,720.46	1,279.54
1910	15,000	12,115.22	2,884.78
1911	14,900	13,999.02	900.98
1912	14,900	14,463.30	436.70
1913	17,000	16,970.47	29.53
1914	20,000	19,812.78	187.22
1915	20,000	19,778.57	221.43
1916	20,000	19,982.36	17.64
1917	20,000	19,998.91	1.09
1918	20,000	19,950.88	49.12
1919	27,000	24,445.03	2,554.97
1920	36,000	34,781.46	1,919.54
1921	45,000	41,224.40	3,775.60
1922	50,000	44,970.42	29.58
1923	45,000	44,483.37	516.63
1924	45,000	43,080.97	1,919.03
1925	44,600	42,858.69	1,741.31
1926	43,400	43,055.59	344.41
1927	43,000	42,495.86	504.14
1928	43,000	42,983.93	16.07
1929	43,000	42,517.65	482.35
1930	43,000	42,717.74	282.26
1931	43,000	42,278.93	721.07
1932	48,000	46,760.90	1,239.10
1933	48,000	41,945.77	6,054.23
1934	54,775	40,982.32	13,792.68
1935	50,000	49,055.00	945.00
1936	64,000	62,683.00	1,317.00

¹These figures do not include sums expended for salaries or for work in the field, nor do the figures from 1932-1936 include the income derived from gifts.

APPENDIX E.

APPROPRIATIONS FOR THE ADMINISTRATION OF THE VIRUS LAW
FROM 1917 TO 1936

Year	Appropriation	Expenditure	Balance
1917	\$10,000	\$9,929.86	\$ 70.14
1918	20,000	19,794.92	205.08
1919	30,000	29,868.67	131.33
1920	50,000	49,829.97	170.03
1921	50,000	46,136.60	3,863.40
1922	50,000	44,813.84	5,186.16
1923	50,000	49,750.36	269.64
1924	41,500	40,729.81	770.19
1925	45,020	42,052.50	2,967.50
1926	45,000	44,960.17	39.83
1927	45,000	44,468.98	531.00
1928	45,000	44,458.55	4,541.45
1929	45,000	44,845.56	154.44
1930	46,620	46,260.47	359.53
1931	46,620	45,736.54	883.46
1932	46,620	44,937.45	1,682.55
1933	46,000	40,098.35	5,901.65
1934	43,900	39,657.50	4,242.50
1935	41,584	41,141.00	443.00
1936	45,000	44,112.00	888.00

APPENDIX F.

NUMBER OF ESTABLISHMENTS GRANTED LICENSES FOR THE SALE OF
VACCINES, ETC., FROM 1910 TO 1936 AND THE NUMBER OF
PRODUCTS LICENSED FROM 1919 TO 1936

Year	Number of Establishments	Number of Products
1910	15	
1911	24	
1912	25	
1913	28	
1914	41	
1915	41	
1916	42	
1917	31	
1918	29	
1919	31	89
1920	38	93
1921	41	102
1922	43	104
1923	40	104
1924	46	91
1925	47	96
1926	48	98
1927	50	123
1928	47	123
1929	47	123
1930	47	126
1931	50	137
1932	46	141
1933	?	?
1934	48	147
1935	49	155
1936	54	157

APPENDIX G.

*Bibliography*UNITED STATES GOVERNMENT DOCUMENTS DEALING WITH THE WORK OF THE
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Four separate articles for the layman have been written specifically on the work at the laboratory, and all treat largely the character of the work performed rather than the administration of the Institute.

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There are a number of general works dealing with the Federal Government and public health, treating both the administrative and the scientific fields. Although all those listed below contain short references to the National Institute of Health, none of them is adequate and the references to the Institute are frequently inaccurate, or out of date. They are valu-

able, however, insofar as they provide a general background for a study of the Institute, but they should be studied with discrimination. Some of these general works are listed below.

LEIGH, FEDERAL HEALTH ADMINISTRATION IN THE UNITED STATES (1927).

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